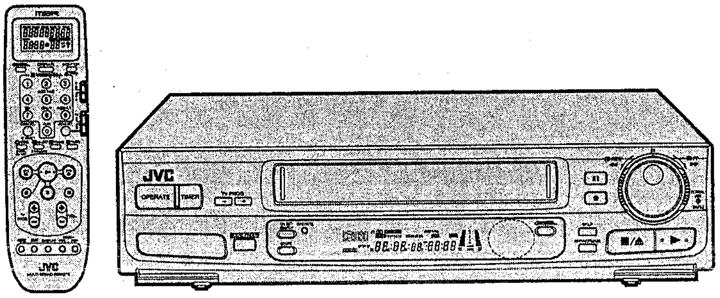
JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-J620EK/J625EK



VIDEO Plus+

VHS
PAL

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-J620EK)*

GENERAL

Power requirement : AC 220 – 240 V∿, 50/60 Hz
Power consumption : 24 W
Temperature
Operating : 5°C to 40°C
Storage : -20°C to 60°C
Operating position : Horizontal only
Dimensions (WxHxD) : 400 x 94 x 344 mm
Weight : 4.3 kg
Format : VHS PAL standard
Maximum recording time (SP) : 240 min. with E-240 video cassette
(LP) : 480 min. with E-240 video cassette

VIDEO/AUDIO

Signal system : PAL-type colour signal and CCIR monochrome signal, 625 lines/50 fields
Recording/Playback system : DA4 (Double Azimuth) head helical scan system
Signal-to-noise ratio : 45 dB
Horizontal resolution : 250 lines
Frequency range : 70 Hz to 10,000 Hz
20 Hz to 20,000 Hz (Hi-Fi audio)
Input/Output : 21-pin scart connector x 2
(IN/OUT x 1 IN x 1)
RCA connectors (AUDIO OUT x 1)

TUNER/TIMER

TV channel storage capacity : 80 positions (+AUX position "AU")
Tuning system : Frequency synthesized tuner
Channel coverage : UHF channels 21 – 69
(470 – 862 MHz)
Aerial output : UHF channel 36
(Adjustable 32 – 40)
Memory backup time : Approx. 3 min.

ACCESSORIES

Provided accessories : RF cable,
Infrared remote control unit,
"R6" battery x 2
Optional accessories : PDC/VPS adapter VU-V115E

Specifications shown are for SP mode unless otherwise specified.
E.& O.E. Design and specifications subject to change without notice.

No. 82479
June 1995

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The following table lists the differring points between Models (HR-J620EK and HR-J625EK) in this series.

	HR-J620EK	HR-J625EK
PDC	×	○

○:USED ×:NOT USED

Safety Precautions

1. The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorised in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits.
2. Any unauthorised design alterations or additions will void the manufacturer's guarantee ; furthermore the manufacturer cannot accept responsibility for personal injury or property damage resulting therefrom.
3. Essential safety critical components are identified by (⚠) on the Parts List and by shading on the schematics ,and must never be replaced by parts other than those listed in the manual. Please note however that many electrical and mechanical parts in the product have special safety related characteristics. These characteristics are often not evident from visual inspection . Parts other than specified by the manufacturer may not have the same safety characteristics as the recommended replacement parts shown in the Parts List of the service manual and may create shock , fire , or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

Warning

1. Service should be performed by qualified personnel only.
2. This equipment has been designed and manufactured to meet international safety standards.
3. It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
4. Repairs must be made in accordance with the relevant safety standards.
5. It is essential that safety critical components are replaced by approved parts.
6. If mains voltage selector is provided, check setting for local voltage .

INSTRUCTIONS

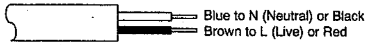
Safety Precautions

The rating plate and the safety caution are on the rear of the unit.

WARNING: DANGEROUS VOLTAGE INSIDE
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

IMPORTANT

Connection to the mains supply in the United Kingdom.
DO NOT cut off the mains plug from this equipment.
If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain a proper safety approved extension lead/adapter or consult your dealer.
BE SURE to replace the fuse only with an identical approved type, as originally fitted, and to replace the fuse cover.
If nonetheless the mains plug is cut off remove the fuse and dispose of the plug immediately, to avoid a possible shock hazard by inadvertent connection to the mains supply.
If this product is not supplied fitted with a mains plug then follow the instructions given below:
DO NOT make any connection to the Larger Terminal coded E or Green.
The wires in the mains lead are coloured in accordance with the following code:



If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black.
Brown wire to terminal coded L (Live) or coloured Red.
If in doubt — consult a competent electrician.

CAUTION

- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the mains outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the mains outlet prior to connecting or disconnecting any signal lead or aerial.

IMPORTANT

- Please read the various precautions on p. 2 – 3 of this instruction manual before installing or operating the recorder.
- It should be noted that it may be unlawful to re-record pre-recorded tapes, records, or discs without the consent of the owner of copyright in the sound or video recording, broadcast or cable programme and in any literary, dramatic, musical, or artistic work embodied therein.

The OPERATE button does not completely shut off mains power from the unit, but switches operating current on and off.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

Some Do's And Dont's On The Safe Use Of Equipment

This equipment has been designed and manufactured to meet international safety standards but, like any electrical equipment, care must be taken if you are to obtain the best results and safety is to be assured.

DO read the operating instructions before you attempt to use the equipment.

DO ensure that all electrical connections (including the mains plug, extension leads and interconnections between pieces of equipment) are properly made and in accordance with the manufacturer's instructions. Switch off and withdraw the mains plug when making or changing connections.

DO consult your dealer if you are ever in doubt about the installation, operation or safety of your equipment.

DO be careful with glass panels or doors on equipment.

DON'T continue to operate the equipment if you are in any doubt about it working normally, or if it is damanged in any way — switch off, withdraw the mains plug and consult your dealer.

DON'T remove any fixed cover as this may expose dangerous voltages.

DON'T leave equipment switched on when it is unattended unless it is specifically stated that it is designed for unattended operation or has a standby mode. Switch off using the switch on the equipment and make sure that your family knows how to do this. Special arrangements may need to be made for infirm or handicapped people.

DON'T use equipment such as personal stereos or radios so that you are distracted from the requirements of road safety. It is illegal to watch television whilst driving.

DON'T listen to headphones at high volume, as such use can permanently damage your hearing.

DON'T obstruct the ventilation of the equipment, for example with curtains or soft furnishings. Overheating will cause damage and shorten the life of the equipment.

DON'T use makeshift stands and NEVER fix legs with wood screws — to ensure complete safety always fit the manufacturer's approved stand or legs with the fixings provided according to the instructions.

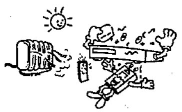
DON'T allow electrical equipment to be exposed to rain or moisture.

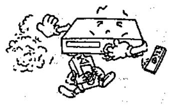
ABOVE ALL

— NEVER let anyone especially children push anything into holes, slots or any other opening in the case — this could result in a fatal electrical shock;

— NEVER guess or take chances with electrical equipment of any kind — it is better to be safe than sorry!

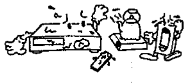
Please follow these safety precautions. Not doing so may result in damage to the recorder, remote control, or video cassette.

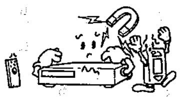

Avoid extreme heat and direct sunlight


Avoid dust

Avoid extreme cold

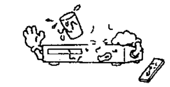
Avoid places subject to vibrations

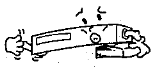

Avoid extreme humidity

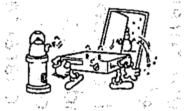

Avoid strong magnetic fields

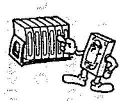
Do not place anything heavy on the recorder or remote control

Do not place the recorder on cushions, pillows, or thick carpeting


Do not place anything which might spill on top of the recorder or remote control


Use the recorder in a stable, horizontal position only

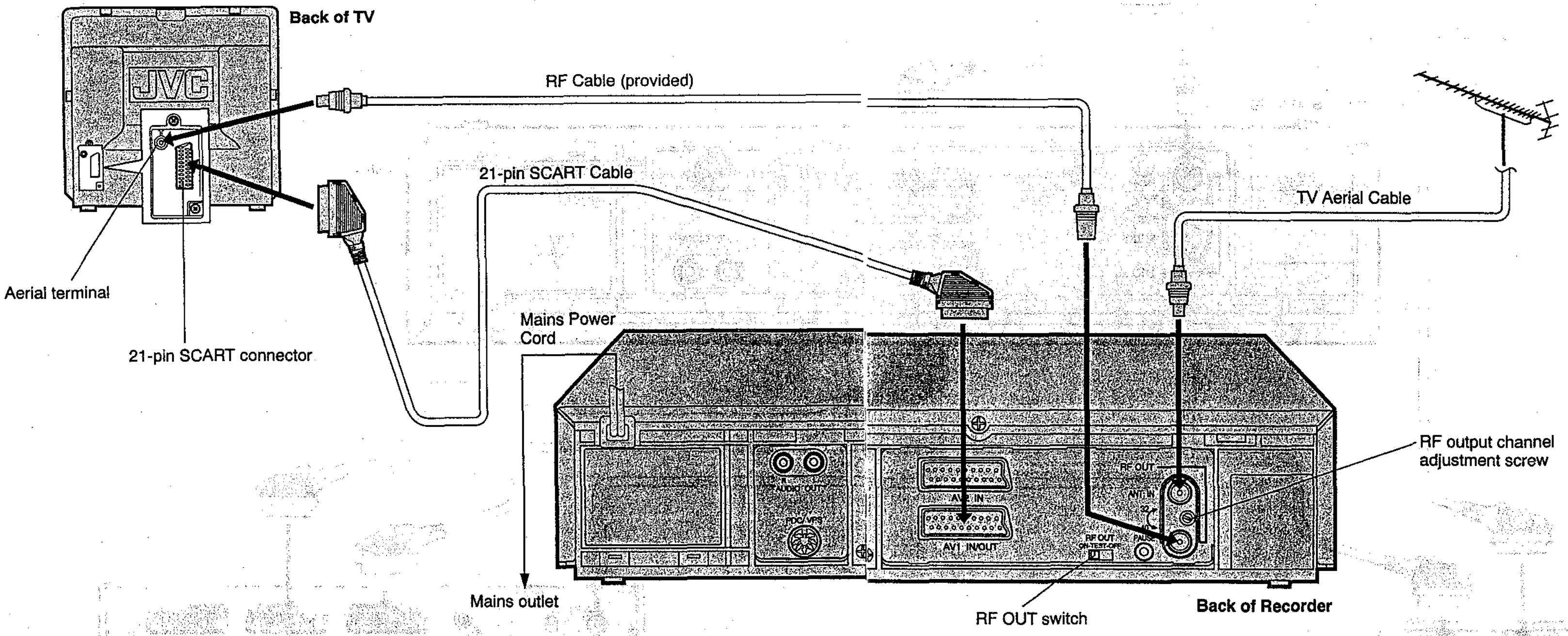

Beware of moisture condensation
Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions — just as water droplets form on the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the recorder's power turned on for a few hours to let the moisture dry.


Place cassettes in cassette cases and store vertically

When transporting
- Be sure to remove cassette from recorder before packing
- Avoid violent shocks to the recorder during packing and transport

Installation

It's essential that your video recorder be properly connected. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.


Back of TV
RF Cable (provided)
21-pin SCART Cable
TV Aerial Cable
Aerial terminal
21-pin SCART connector
Mains Power Cord
RF output channel adjustment screw
Mains outlet
RF OUT switch
Back of Recorder
JVC
RF OUT
ANT IN
AV2 IN
AV1 IN/OUT

RECORDER-TO-TV CONNECTION

RF CONNECTION

For TV sets without AV input terminals:

1. Connect the TV aerial cable to the recorder.
2. Connect the recorder with the provided RF cable to the TV's aerial terminal.

AV CONNECTION

For TV sets with AV input terminals:

1. Connect the aerial, recorder and TV as per "RF CONNECTION".
2. Connect the recorder with an optional SCART cable to the TV's 21-pin SCART connector.
3. Set the RF OUT switch to OFF.

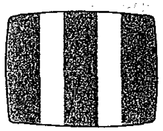
CONNECT RECORDER TO MAINS

1. Plug the end of the mains power cord into mains outlet.

TUNE THE TV TO YOUR VIDEO RECORDER

The video recorder sends picture and sound signals via the RF connecting cable to your TV on UHF channel 36.

TEST SIGNAL



1. Turn on the recorder.
2. Set the RF OUT switch to TEST.
3. Set your TV to the video preset. Tune the TV to bring the two vertical white bars on the screen most clearly. (UHF/CH 36)
   - Your TV should be set to the preset designated for use with a video recorder or to a spare preset if there is not a specified video preset on your TV.
4. Reset the RF OUT switch to ON.

NOTE:

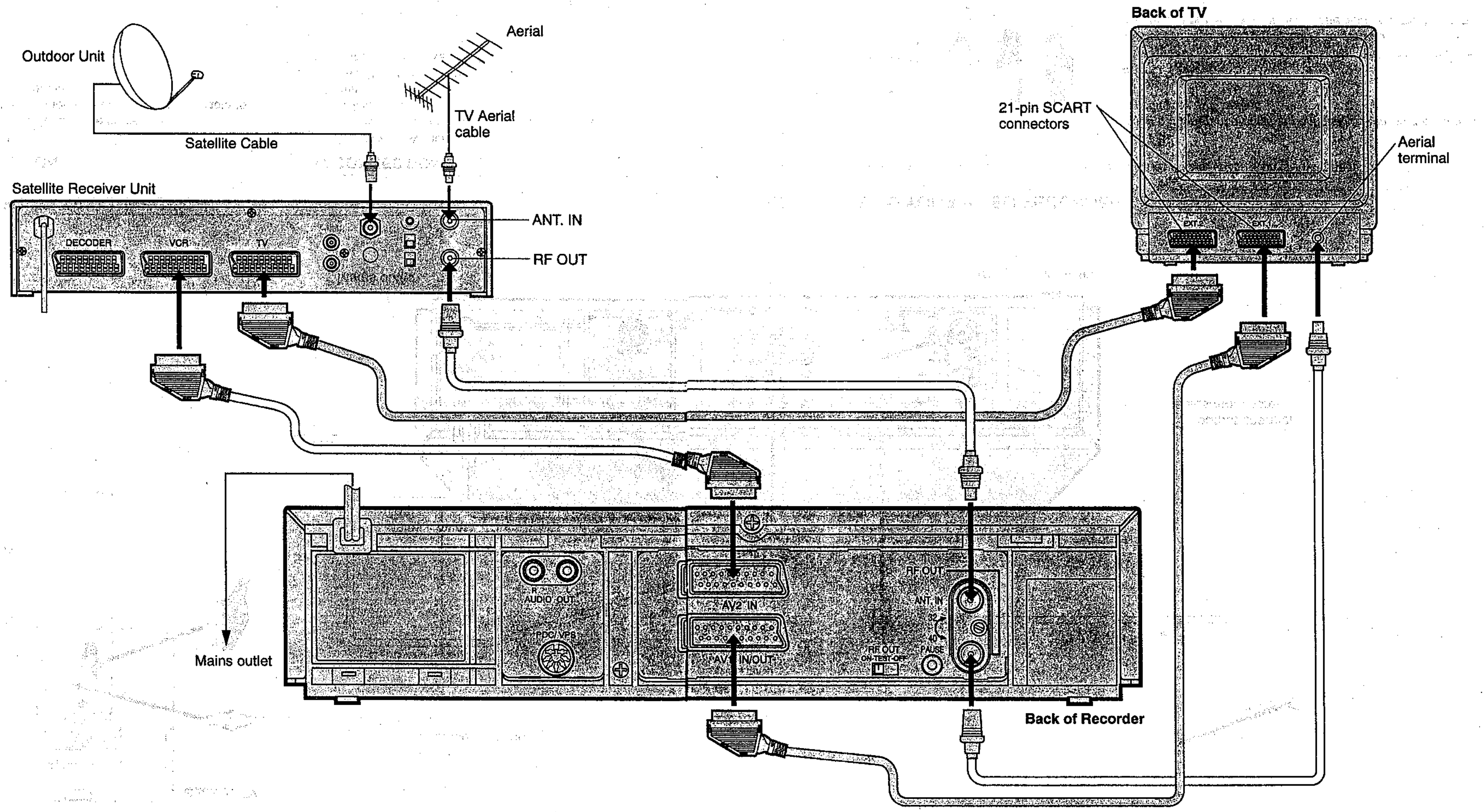
If some interference noise is continually seen on the screen, consult your JVC dealer.

IMPORTANT:

To operate the recorder with your TV using the RF connection, it is always necessary to set your TV's preset to the VIDEO preset. With an AV connection, set the TV to the VIDEO (or AV) mode.

Installation (cont'd)

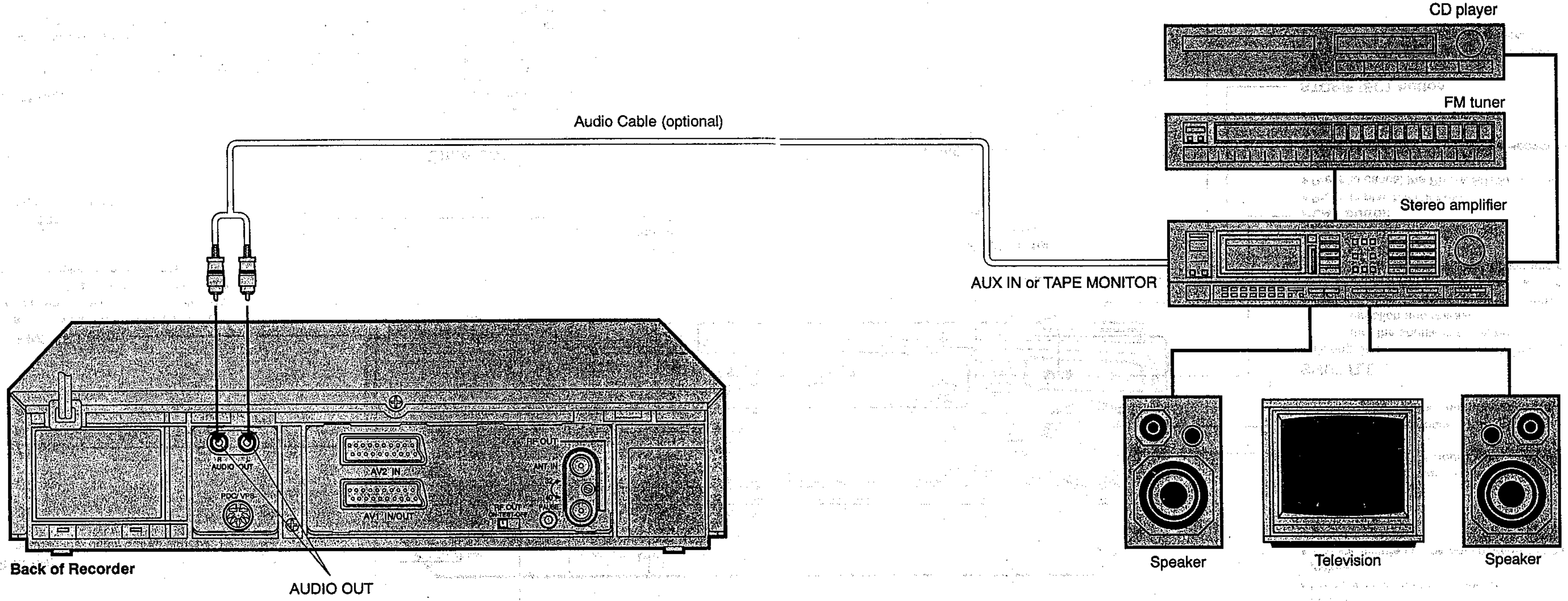
The AV2 IN socket on the rear panel of your recorder allows simple connection to a satellite receiver.


Outdoor Unit
Aerial
TV Aerial cable
Satellite Cable
Satellite Receiver Unit
DECODER
VCR
TV
ANT. IN
RF OUT
Back of TV
21-pin SCART connectors
Aerial terminal
Mains outlet
AUDIO OUT
AV2 IN
AV1 IN/OUT
RF OUT
ANT. IN
PAUSE
Back of Recorder

NOTES:
- *When connecting your recorder to a TV equipped with 21-pin SCART connectors, follow the illustration above using the cables shown in gray.*
- *For details, check your satellite receiver's instruction manual.*

Installation (cont'd)

If you have a Hi-Fi stereo system and would like to connect your video recorder to it so that the sound can be heard through your Hi-Fi system, please make these additional connections:


CD player
FM tuner
Stereo amplifier
Audio Cable (optional)
AUX IN or TAPE MONITOR
Back of Recorder
AUDIO OUT
AV2 IN
AV1 IN/OUT
RF OUT
ANT IN
Speaker
Television
Speaker

TO CONNECT TO A STEREO SYSTEM

1. Connect the AUDIO OUT L and R connectors of the recorder to the AUX IN or TAPE MONITOR terminals of the amplifier.

NOTES:

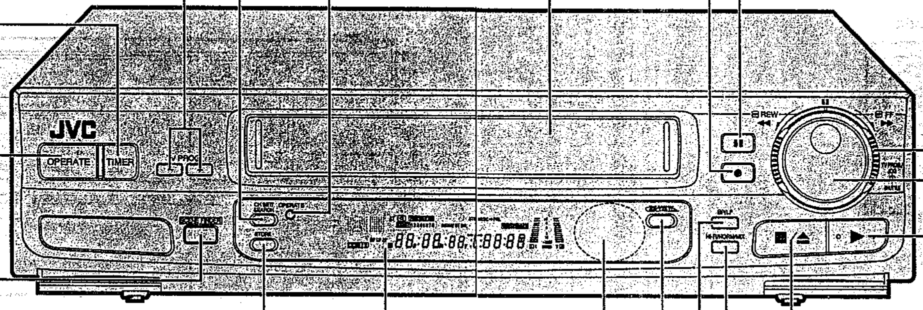
- *Make sure L and R are correct when connecting the audio output connectors of the recorder to a stereo amplifier.*
- *If NICAM TV broadcasts are receivable in your area, this recorder can record them independently of the TV set and play them back through the connected audio system.*
- *When listening to sound from the connected stereo system, turn down the sound volume of the TV completely.*

CAUTION:

- This recorder has a dynamic range of more than 90 dB with regards to its hi-fi audio capability. It is recommended that you check the maximum level if you are going to listen to the hi-fi audio signals through a stereo amplifier. A sudden surge in speaker input may cause speaker damage.
- Some speakers and televisions are specially shielded to prevent television interference. If both are of the non-shielded type, do not place the speakers adjacent to the TV set, otherwise the video playback picture may be adversely affected.

Control And Indicators

Front Panel



TV PROG. buttons
Press either button to scan to a desired channel.

TIMER button
Press to engage the Timer Standby mode.

OPERATE button
Press to turn the recorder ON or OFF. The indicator will light when ON. Loading a cassette also turns the power on.

SCENE FINDER button
Press to start "Scene Finder" function which alternates between Fast Forward (or Rewind) and Shuttle Search at regular intervals to check contents of unlabeled recorded tapes.

STORE button
Press to store a TV station in the Tuning mode.

CH SET/SEARCH button
- Press more than 2 seconds to select the Tuning mode.
- Press while in the Tuning mode to start semi-automatic channel search.

OPERATE indicator

Fluorescent Display Panel (FDP)

Cassette loading slot
Insert a VHS cassette. The door will close and the "cassette loaded" indicator will appear on the FDP (fluorescent display panel).

SP/LP button
Press to select the recording speed (SP or LP).

REVIEW button
- The button will light after the recorder finishes timer-recording.
- Press to "review" a TV programme you have timer-recorded. (The button blinks when the tape is being rewound.)

Infrared beam receiving window

REC/ITR button
- Press once to start recording.
- Press twice to engage Instant Timer Recording (ITR).
- Also use to set the required recording time for ITR.

PAUSE/STILL button
- Press while in the Record mode to stop the tape temporarily to avoid recording of unwanted material.
- Press while in the Play mode to view a still picture.
- The still picture can be advanced each time this button is pressed.

TV PROG./JOG
- During Stop : To scan to a desired preset, turn the dial in the appropriate direction and release it.
- During Still or Playback : Turn the dial to the right or left for frame-by-frame playback.

SHUTTLE
- During Stop : To rewind or fast-forward the tape, turn the shuttle in the appropriate direction and release it.
- During Still or Playback : Turn the Shuttle to the right for forward slow motion and search, or left for reverse slow motion and search.

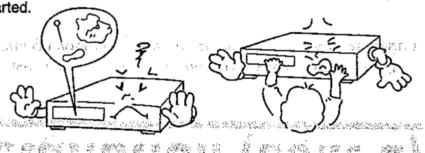
PLAY button
- Press to play back a tape.
- Press to cancel the Pause/Still/Slow or Shuttle Search. (☞ p. 21)
- Press to start recording from the Record-Pause mode.

STOP/EJECT button
- Press to stop the tape.
- If already stopped, press to eject the tape.
- Press to disengage the Tuning mode.

Hi-Fi/NORM/MIX
Press to select the soundtrack.
- Hi-Fi : The Hi-Fi(stereo) tracks.
- NORM : The normal(monaural) tracks.
- MIX : Both the Hi-Fi and normal tracks.

WARNING

- Do not insert fingers or foreign objects into the cassette loading slot since this could lead to injury or damage to the mechanism. Be especially careful with children.
- Do not try to pull out a cassette once automatic loading has started.



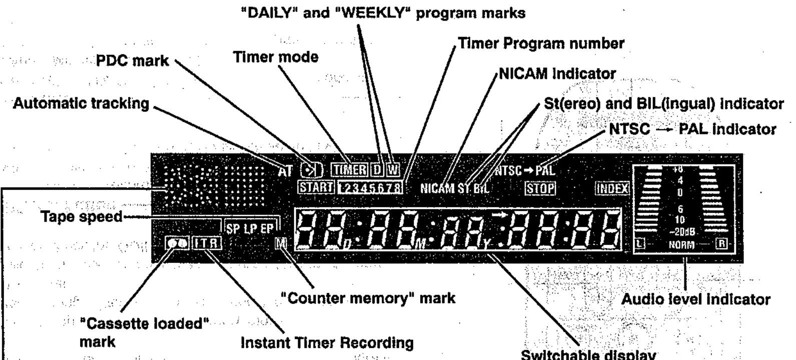
Child Lock

To avoid unwanted operation and prevent accidental recording...

1. Press the remote control's OPERATE button to turn the recorder's power off. Keep this button pressed for about 2 more seconds after the power LED indicator has gone off.
   - The Child Lock indicator (–) will appear on the display panel.
2. Child Lock is cancelled when you switch the recorder's power on with the remote's OPERATE button.
   - Pressing the TIMER button during timer-recording also cancels the Child Lock mode.

Controls And Indicators (cont'd)

Display Panel


"DAILY" and "WEEKLY" program marks
Timer Program number
PDC mark
Timer mode
NICAM Indicator
Automatic tracking
St(ereo) and BIL(ingual) indicator
NTSC → PAL indicator
Tape speed
"Counter memory" mark
Audio level indicator
"Cassette loaded" mark
Instant Timer Recording

Switchable display
- Preset position
- Date/Clock
- AUX indicator(AU 1 or AU 2)
- Child lock indicator
- Timer start/stop time
- Instant timer recording time
- TV station number
- Realtime tape counter
- INDEX code number

Symbolic mode indicators

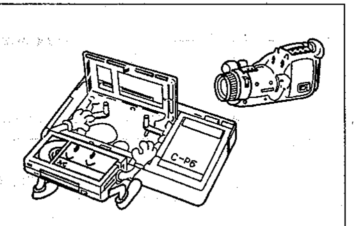
PLAY:	▷	REVERSE PLAY:	◁
FF:	▷▷	STILL: FORWARD SLOW:	▷ ▯▯▯
REW:	◁◁	STILL: REVERSE SLOW:	◁ ▯▯▯
FF VARIABLE SHUTTLE SEARCH:	▷ ▷▷ *	RECORD:	○
REW VARIABLE SHUTTLE SEARCH:	◁ ◁◁ *	RECORD PAUSE:	○ ▯▯▯

* The indicator will blink during turbo search.

Usable Cassettes

Full-Size VHS
E-30 (SE-30**)
E-60 (SE-60**)
E-90
E-120
E-180 (SE-180**)
E-240

Compact VHS*
EC-30 (SE-C30**)
EC-45 (SE-C45**)

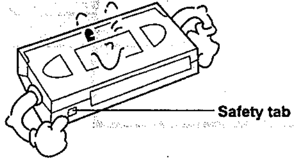


* Compact VHS camcorder recordings can be played on this video recorder. Simply place the recorder cassette into a C-P6 Cassette Adapter and it can be used just like any full-sized VHS cassette.

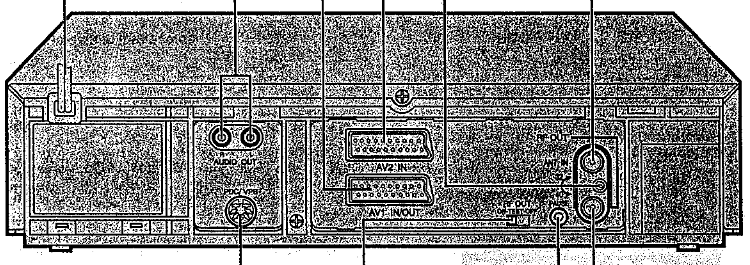
** This video recorder can record on regular VHS and Super VHS cassettes. However, it will record and play back regular VHS signals only. It is not possible to play back a recorded Super VHS tape.

Accidental Erasure Prevention

To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.



Rear Panel


AUDIO OUT
PDC/VPS
AV2 IN
AV1 IN/OUT
RF OUT
ANT IN

AV1 IN/OUT socket
A 21-pin standardised audio/video input/output (SCART) socket for AV connection to a TV or a 2nd video recorder. The input from this socket can be recorded in the AUX mode engaged by obtaining "AU 1" in the preset position display.

AUDIO OUT(PUT) connector (L/R)
For connection to the audio input connectors on a TV set, a VCR, or an audio tape recorder.

Mains power cord

PDC/VPS connector
Connect PDC/VPS adapter (VU-V115E) to take advantage of PDC recording (☞ p. 34).

RF OUT switch
- Set to ON if you are using RF connection. (☞ p.4)
- Set to TEST when tuning your TV receiver for the video preset. A test signal in the form of two vertical white bars will be available. (☞ p.5)
- Set to OFF if you are using AV connection. (☞ p.4)

AV2 IN socket
A 21-pin audio/video input socket for connection to a satellite receiver or a 2nd video recorder.
The input from this socket can be recorded in the AUX mode engaged by obtaining "AU 2" in the preset position display.

RF converter frequency adjustment screw (CH40 – CH32)
With RF connection, picture and sound signals are sent to channel 36 on a TV. If 36 is occupied by a local station, the channel can be adjusted by ±4 (CH 32 through CH 40).

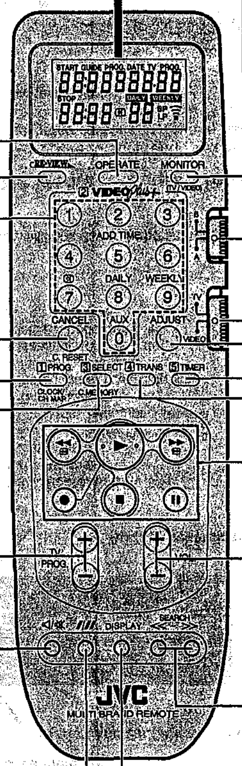
Aerial Input connector (ANT. IN)
Connect an aerial to this connector.

RF OUT connector
Connect to the aerial terminal of a TV receiver using the provided aerial cable.

PAUSE connector
Connect to a 2nd Video recorder which has an R.A. EDIT connector or to a JVC camcoder which is equipped with the Master Edit Control system (☞ p. 36).

Controls And Indicators (cont'd)

Remote Control Unit



OPERATE button
Press to turn the recorder ON or OFF.
Keep this button pressed for 2 seconds when turning the power off to engage the Child Lock mode.

REVIEW button
Press to "review" a TV programme you have timer-recorded. (☞ p. 22)

Multi-purpose numeric keys
Clock setting:
Channel selection:
Timer Programming:
External Source recording:

CANCEL/C. RESET button
- Press to cancel a programme in the Timer Set mode.
- Press to reset the counter to "0:00:00".
- Press to delete a TV station in the Tuning mode.

PROG./CLOCK/CH MAP button
- If the clock has not been set, press to begin clock setting.
- If the clock has already been set, each press rotates the display: Video Plus+ Timer Program → LCD Timer Program → Clock Set mode → Channel Map mode.

SELECT/C. MEMORY
- Press to change the data in the Clock Set or Timer Program mode.
- Press to engage the Counter Memory mode.
- After entering a PlusCode, press to check or correct the entered data.
- While the remote control is in the Channel Map mode, press to set or check the GUIDE PROG. and TV PROG. number.

TV PROG. button
Press to select the recorder's preset position number with the TV/VIDEO switch set to "VIDEO"; or to select the TV's preset position number with the TV/VIDEO switch set to "TV".

◁/🔇 button
- When the TV/VIDEO switch is set to "VIDEO", it works as an Audio Monitor button.(☞ p. 23)
- When the TV/VIDEO switch is set to "TV", press to mute the TV's sound.

/// button
- When the TV/VIDEO switch is set to "VIDEO", press to select the tape speed for recording.
- When the TV/VIDEO switch is set to "TV", it works as a digit entry button to select the TV's channel (☞ p. 37).

MONITOR button
Press to select the TV's operating mode
TV: For viewing broadcast programmes or tape programmes via RF OUT connection.
VIDEO: For viewing programmes via the AV connection.

A/B CODE switch
When operating two JVC video decks, use to switch this remote control from the "A" mode to "B" mode, or vice versa, depending on the deck to be controlled.

TV/VIDEO switch
Set to "VIDEO" to operate the recorder; set to "TV" to operate the TV (☞ p. 37).

ADJUST button
Press to check timer program settings.

TIMER button
Press to set the recorder to Timer mode.

TRANS button
Press to transfer the data to the recorder.

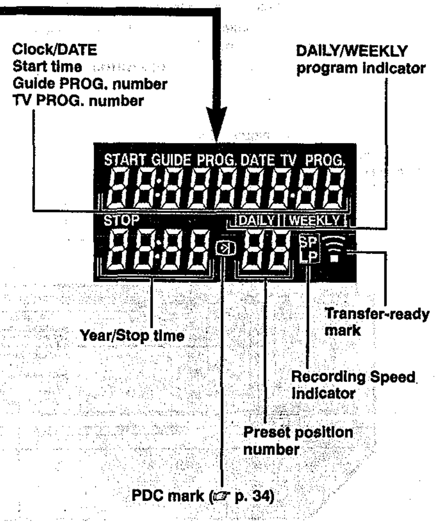
Basic Functions
◀◀/▶▶ (Rewind)(Fast-Forward)(Shuttle Search) buttons
▶ (Play) button
● (Record) button
Press together with the ▶ button to start recording.
■ (Stop) button
II (PAUSE/STILL/SLOW) button

VOL. button
Use to adjust the TV's sound volume.

SEARCH buttons
- Press either button during playback to search for specific segments of a programme at variable speeds.
- Press either button while the tape is stopped for automatic Index Search.
- When the TV/VIDEO switch is set to "TV", it works as +10 and +20 buttons to select the TV's channel (☞ p. 37).

DISPLAY button
Press to switch the display among the time, date and counter reading .

LCD (Liquid Crystal Display) Panel



Clock/DATE
Start time
Guide PROG. number
TV PROG. number

DAILY/WEEKLY program indicator

Year/Stop time

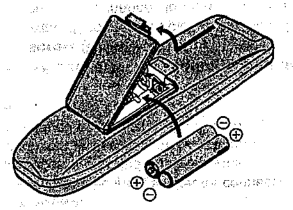
Transfer-ready mark

Recording Speed indicator

Preset position number

PDC mark (☞ p. 34)

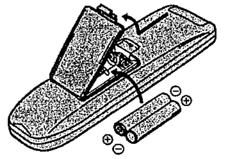
Installing Batteries
1 Open the battery compartment cover.
2 Insert 2 "R6"-size batteries (provided) in the correct directions.
3 Replace the cover.

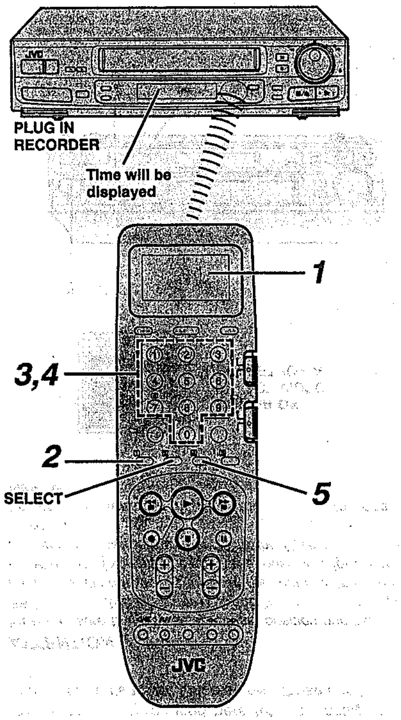


How To Use
The remote control can operate most of your video recorder's functions, as well as basic functions of TV sets of JVC and other brands. ☞ p. 37.
- ■ Point the remote control toward the sensor window.
- ■ The maximum operating distance of the remote control is about 8 m.

Setting The Clock

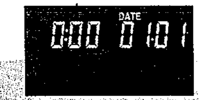
Since your video recorder bases all of its timer recording start and stop "decisions" on the time kept by its built-in clock, accurate setting of this clock is crucial for proper timer-recording results. Follow these instructions to set the remote control's LCD clock and transfer its contents to the recorder's clock.





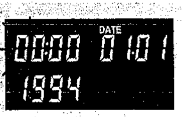
LOAD BATTERIES

1 Check the LCD.
- The time display section (0:00) will be blinking.



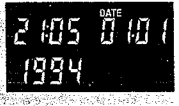
START CLOCK SETTING

2 Press CLOCK.
- Blinking digits will prompt you to items that can be set.



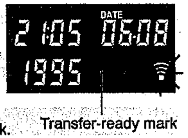
INPUT THE TIME

3 Press the appropriate numeric keys.
- Example: For 21:05, press 2 1 0 5.



INPUT THE DAY/MONTH/YEAR

4 Press the appropriate numeric keys.
- Example: For 6th August 1995, press 0 6 0 8 1 9 9 5.
- After setting the year, the transfer-ready mark will appear and blink.

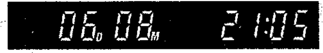


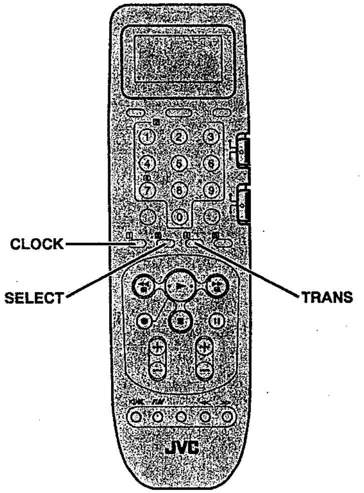
TO MAKE CORRECTIONS

Press SELECT button so that the item you want to change blinks. Re-input that item. Continue to step 5.

SETTING THE RECORDER'S CLOCK

5 Press TRANS with the remote control directed to the recorder's Remote Sensor window.
- The remote control's clock will start. At the same time, the set data will be transferred to the recorder.





TO RESET THE CLOCK

For British Summer Time change, reset the clock as follows:

1. Press CLOCK three times.
2. Press SELECT so that the item you want to change blinks. Re-input that item.
3. Press TRANS with the remote control directed to the recorder's remote sensor window.

AFTER A POWER CUT

Since your video recorder has a 3-minute backup memory, it will not be affected by short power cuts. If mains power is unavailable for over 3 minutes, however, the recorder's display will reset to 0:00. In such a case, simply transfer the remote control's time to the recorder.

1. Press CLOCK three times.
2. Press TRANS with the remote control directed to the recorder's remote sensor window.

NOTES:

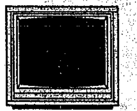
- *If the day and month data is invalid (such as 31st April), the month digits are cleared automatically and the day digits will blink. Input again.*
- *If the year digits are automatically cleared in step 4, it is possible that you have input 29th February for a non-leap year. Input again.*
- *When the batteries are exhausted, the LCD's characters become translucent and difficult to read. Replace both batteries and set the clock again.*

Tuning In Your Video Recorder To Local TV Stations

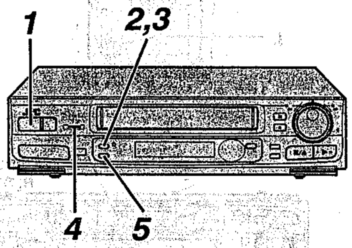
The procedure introduced here lets you assign receivable TV stations in your area to preset positions on your video recorder's tuner. Once stored, these can be accessed with the TV PROG. buttons.

ATTENTION

Please ensure that you select preset position number "1" for BBC1, "2" for BBC2, "3" for ITV, and "4" for CH4 since these are pre-set in your Video Plus+ remote control in this order.
In the display example shown, preset position 3 for ITV would be tuned to channel number 23 in the Crystal Palace area (London).
For channel numbers in your area, refer to the chart on page 39.



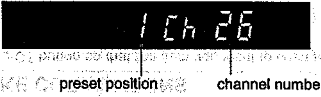
POWER ON;
SELECT VIDEO
PRESET (OR AV MODE)



ENGAGE THE TUNING MODE

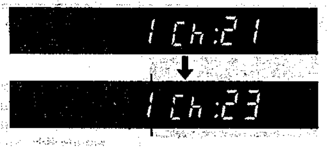
1 Press OPERATE to turn on the recorder.

2 Press CH SET until the display panel shows the following.



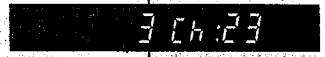
START TUNING

3 Press SEARCH.
- Automatic scanning will start at the lowest station channel number, and stop when a station is detected.
- If this is not the station you want to store, press SEARCH again.



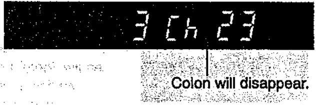
SELECT A PRESET POSITION

4 Press TV PROG. to select the tuner preset position where you wish to store that TV station.



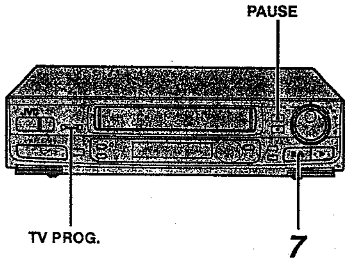
STORE THE STATION

5 Press STORE to store the station.



- This message indicates that UHF channel 23 has been stored in the tuner's preset position 3.

(Continued on next page.)



CONTINUE

6 Repeat steps 3 through 5 for other TV stations.
- If the picture of the detected station is not satisfactory, try fine-tuning. See below.

CANCEL THE TUNING MODE

7 Press STOP.

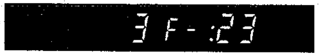
To change preset stations, ☞ p. 38

NOTE:
- *If you want to return to a lower channel number after skipping it by mistake in Step 3, hold down SEARCH to start reverse channel search. Releasing the button stops the reverse search.*

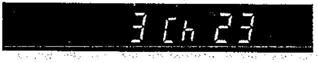
To get a clearer picture — Fine-Tuning —

After step 6, you can perform Auto Fine-Tuning for all the stored stations at once.

1. Press PAUSE for more than 2 seconds.
   - Auto Fine-Tuning will start.



- After completion of Auto Fine-Tuning for all the stored stations, the display panel will return to step 6.



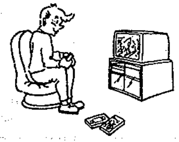
2. Continue to step 7.

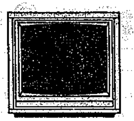
If you want to fine-tune a specified station, try fine-tuning manually.

1. Press TV PROG. (+ or –) to select the station you wish to fine-tune.
2. Press PAUSE briefly.
3. Press TV PROG. (+ or –) so that the picture becomes clearer.
4. Press PAUSE briefly again.
5. Continue to step 7.

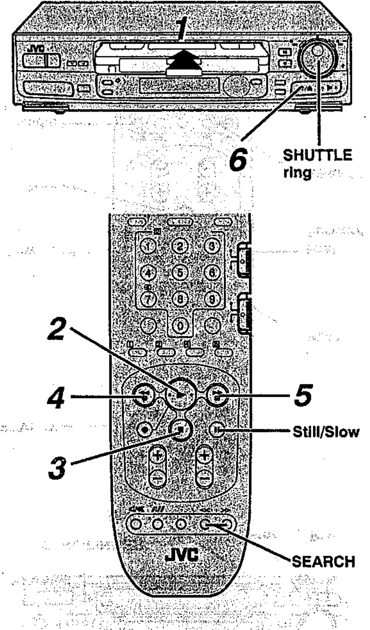
Basic Playback

The easiest, most basic operation possible with your video recorder is tape playback. Already-recorded signals on a video tape are read by your video recorder and displayed on your TV just like a TV programme.





POWER ON;
SELECT VIDEO PRESET
(OR AV MODE)



LOAD A CASSETTE

1 Insert a cassette.
- The recorder power will come on automatically and the counter will be reset to 0:00:00.
- If the safety tab on the cassette is removed, playback will start automatically.

TO START PLAYBACK

2 Press ► (Play).

TO STOP PLAYBACK

3 Press ■ (Stop).

TO REWIND OR FAST-FORWARD

4 To rewind the tape, press ◄◄ (Rewind) or turn the SHUTTLE ring to the left and release it.

5 To fast-forward the tape, press ►► (Fast Forward) or turn the SHUTTLE ring to the right and release it.

TO EJECT THE TAPE

6 Press ■/⏏ (Stop/Eject) on the recorder.

Variable-Speed/High-Speed (Turbo) Search, Still Playback/Frame Advance/Slow Motion

During Playback:
1. Press either SEARCH button for variable-speed search.
   - The more times the button is pressed, the faster the playback picture will move.
   - To decrease speed, press the button for the opposite direction.

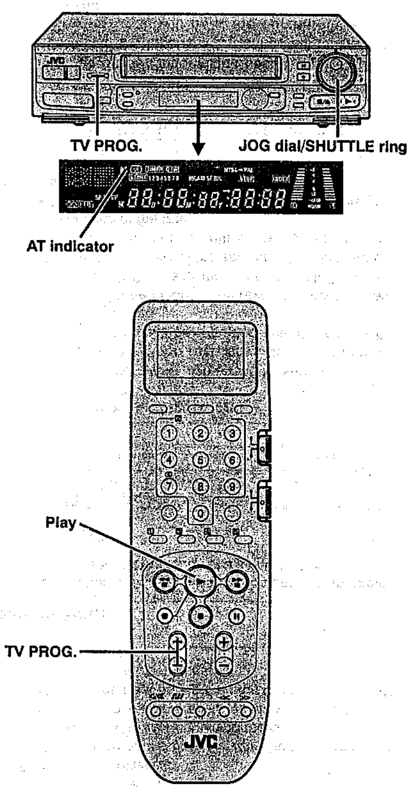
During Playback:
1. Press ►► (Fast Forward) for high-speed forward search, or ◄◄ (Rewind) for high-speed reverse search.
   - For short searches, keep ►► (Fast Forward) or ◄◄ (Rewind) pressed for more than 2 seconds. When released, normal playback will continue.
2. Press ▮▮ (Still/Slow) to view a still picture.
   - Press again to advance the picture frame by frame.
3. Press ▮▮ (Still/Slow) for 2 seconds for slow motion.
   - Press again to stop the picture.
4. Press ► (Play) to resume normal playback.

During Still:
1. For frame-by-frame playback in the forward or reverse direction, press SEARCH ≪ or ≫ for the corresponding direction.

NOTES:
- *The recorder automatically stops when still or slow motion playback continues for more than 5 minutes.*
- *If the still picture is unstable (vertical jitter) use the TV PROG. buttons to correct the picture.*
- *During search playback, some noise bars will appear.*
- *There is no audio during search, still, frame-by-frame, or slow motion playback.*
- *The recorder automatically rewinds when the end of the tape is reached.*

Playback

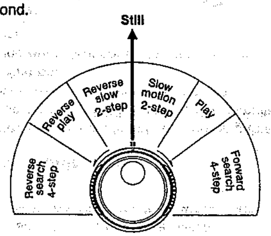
Take advantage of special functions possible with the recorder's controls or the remote control.



Shuttle Dial Control

You can view pictures in slow to fast motion, or frame-by-frame.

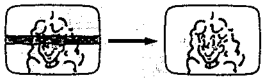
During Still or Playback...
1. Turn the SHUTTLE ring to the right for forward slow motion and search.
   - Release the SHUTTLE ring for a still picture, or...
   - For fast-forward with a visible picture, turn the SHUTTLE ring all the way to the right and release it within 1 second.
2. Turn the SHUTTLE ring to the left for reverse play and search.
   - Release the SHUTTLE ring for a still picture, or...
   - For rewind with a visible picture, turn the SHUTTLE ring all the way to the left and release it within 1 second.



During Still or Playback...
1. Rotate the JOG dial clockwise or counterclockwise for JOG control. The tape moves frame-by-frame at the speed with which the dial is rotated.

Manual Tracking

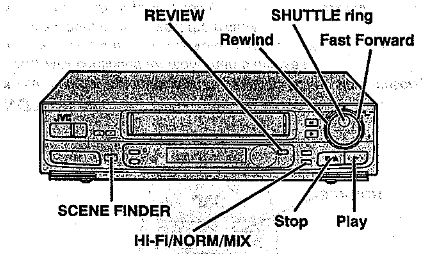
Your video recorder is equipped with automatic tracking control; the AT indicator lights or blinks when automatic tracking is on. During playback, tracking can be adjusted manually using the TV PROG. buttons.

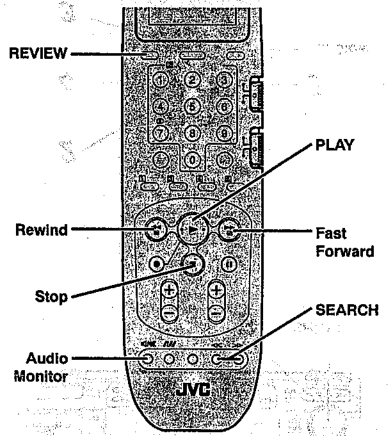


During Playback:
1. Press recorder's TV PROG. (– and +) simultaneously for manual override.
   - The AT indicator will go out.
2. Press TV PROG. (– or +) to adjust tracking.
3. Press recorder's TV PROG. (– and +) simultaneously to return to automatic tracking.

NOTES:
- *When playing back LP recordings in the search, still, or frame-by-frame playback mode, the picture will be distorted, and there will be a loss of colour.*
- *When a new tape is inserted, the recorder enters the automatic tracking mode automatically.*
- *To adjust tracking manually with the remote control, first press the ▮/▮▮ button and then press TV PROG – or +. Press the button ▮/▮▮ again to return to automatic tracking.*

Playback (cont'd)





Repeat Playback

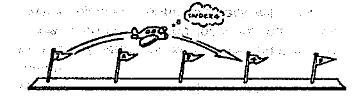
Your video recorder can automatically play back the whole tape 20 times repeatedly.

During Playback:

1. Press Play for more than 5 seconds, and release.
   - The Play indicator (▷) on the display panel will blink slowly.
   - The tape will be played 20 times automatically, and then stop.
2. To stop playback at any time, press ■ (Stop).

Index Search

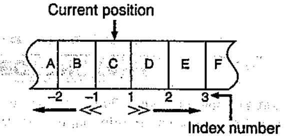
Your recorder automatically marks index codes at the beginning of each recording. This function gives you quick access to any one of 9 index codes in either direction.



During Stop:

1. Press SEARCH ≪ or ≫. "INDEX –1" or "INDEX 1" will be displayed on the display panel and search will begin in the corresponding direction.
2. If you wish to access index codes 2 through 9, press SEARCH repeatedly until the correct index number is displayed.

Ex.: To locate the beginning of B from the current position, press SEARCH ≪ twice.
To locate the beginning of D from the current position, press SEARCH ≫ once.



- When the specified index code is found, playback will start automatically.

ReView Function

Simply by pressing a single button, the recorder power comes on, rewinds, and begins playback of the last recording. This makes it easier to "review" the programme you have timer-recorded.

When the recorder power is off:

1. Press REVIEW.
   - After the recorder power comes on, the tape will be rewound to the beginning of the last recording (where the index code is placed) and playback will start automatically.
   - To play back a recording located 2 index codes away, press REVIEW twice. You can access any one of up to 9 index codes.
   - ReView is not possible while the recorder is in the Timer mode.

Open Search Function

Your video recorder lets you view the picture being rewound or fast-forwarded so you can easily check how far the tape has gone.

During Rewind:

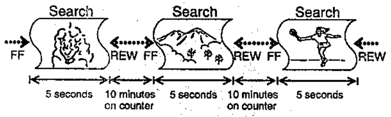
1. Keep the remote's Rewind button pressed, or turn the SHUTTLE ring fully to the left.
   - The rewinding tape's picture will be visible.
2. Release the Rewind button or SHUTTLE ring to resume normal rewinding.

During Fast Forward:

1. Keep the remote's Fast Forward button pressed, or turn the SHUTTLE ring fully to the right.
   - The fast forwarding tape's picture will be visible.
2. Release the Fast Forward button or SHUTTLE ring to resume normal fast forwarding.

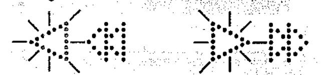
Scene Finder

This function helps you check contents of unlabeled recorded tapes at the touch of a single button.



Anytime except during Record:

1. Press SCENE FINDER.
   - The recorder starts high-speed forward search for 5 seconds and then fast-forwards 10 minutes on counter. This will be repeated until the end of the tape is reached.
   - To start Scene Finder in the reverse direction, press SCENE FINDER and then turn the SHUTTLE ring to the left (or press the remote's Rewind button) within 2 seconds. It will be repeated until the beginning of the tape.
   - During Scene Finder, the display panel shows the following.

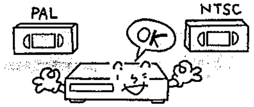


In the reverse direction In the forward direction

   - During Scene Finder High-Speed Search, you can also hear the tape sound. During Fast Forward (or Rewind), you will hear the current TV sound instead.
   - Scene Finder does not function during Index Search.
2. Press STOP to stop Scene Finder.

NTSC Playback

Your video recorder is equipped with NTSC circuitry that can play back NTSC tapes.



1. Insert a cassette recorded in NTSC.
2. Press Play.

When playing back NTSC tapes:

- "NTSC → PAL" will appear on the display panel.
- Some TVs shrink the picture vertically and place black bars at the top and bottom of the screen. This is not a malfunction on the part of either the video recorder or the TV.
- The picture may roll up or down. This can be corrected using the V-HOLD control found on some TVs. (This cannot be corrected if the TV does not have a V-HOLD control.)
- The counter reading will be incorrect.
- During search, still, or frame-by-frame playback, the picture will be distorted, and there will be a loss of colour.

Soundtrack Selection

Your video recorder is capable of recording three soundtracks (HIFI L, HIFI R and NORM) simultaneously, and playing back the selected soundtrack.

During Playback:

- Pressing Audio Monitor on the remote control changes the track:

Track: (on display panel)	Use:
→ L + R	for Hi-Fi stereo tapes.
↓ L	for main audio of bilingual tapes.
↓ R	for sub audio of bilingual tapes.

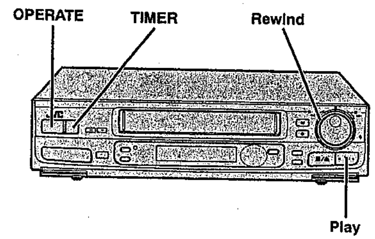
- Pressing Hi-Fi/NORM/MIX on the recorder changes the mode:

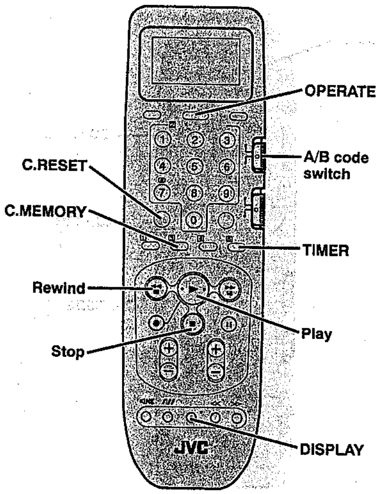
Mode:	Track: (on display panel)	Use:
→ HIFI	L and/or R	for Hi-Fi stereo tapes.
↓ NORM	NORM	for audio-dubbed tapes.
↓ MIX	NORM + L and/or R	for audio-dubbed tapes.

NOTES:

- *Normally use the L + R position. Then Hi-Fi stereo tapes are played back in stereo, and tapes with normal audio only are played back automatically in the NORM mode.*
- *Bilingual programmes are not transmitted in the U.K. at present.*

Playback (cont'd)





Next Function Memory

Your recorder can memorise what to do after rewind.

During Stop:

For automatic start of playback after the tape is rewound:

1. Press ◀◀ (Rewind).
2. Press ▶ (Play) within 2 seconds.

For automatic power off after the tape is rewound:

1. Press ◀◀ (Rewind).
2. Press OPERATE within 2 seconds.

For automatic timer standby after the tape is rewound:

1. Press ◀◀ (Rewind).
2. Press TIMER within 2 seconds.
   - If you want the "next function" to automatically start when the counter reads "0:00:00" (instead of at the beginning of the tape), press C. MEMORY so that the "M" mark appears before pressing ◀◀ (Rewind).

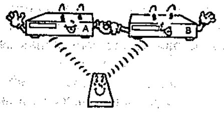
Counter Memory

Returns to the counter reading of "0:00:00" to conveniently find a specific place on the tape automatically.

During Playback:

1. Press DISPLAY until a counter reading appears on the display pannel.
2. Press C. RESET at a point you wish to locate later.
   - The counter will read "0: 00: 00".
3. Press C. MEMORY.
   - "M" will appear in front of the counter digits.
4. When you wish to return to that point, press ■ (Stop) and then press ◀◀ (Rewind).
   - The tape will rewind and stop at about "0: 00: 00" automatically.
5. To cancel the Counter Memory mode, press C. MEMORY again.

Remote A/B Code Switching



The remote control is capable of controlling two JVC video recorders independently; one set to respond to your remote control's A code control signals and another set to respond to B code control signals. The remote control is preset to send A code signals because your video recorder is initially set to respond to A code signals. You can easily modify your video recorder to respond to B code signals.

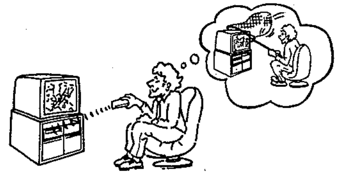
1. Unplug the recorder's power cord from the AC outlet.
2. Set the A/B code switch to B.
3. Plug the power cord back into the AC outlet. Do not use other remote controls at this stage.
4. Turn the recorder power on using the remote control's OPERATE button. The recorder will now only respond to B code signals.

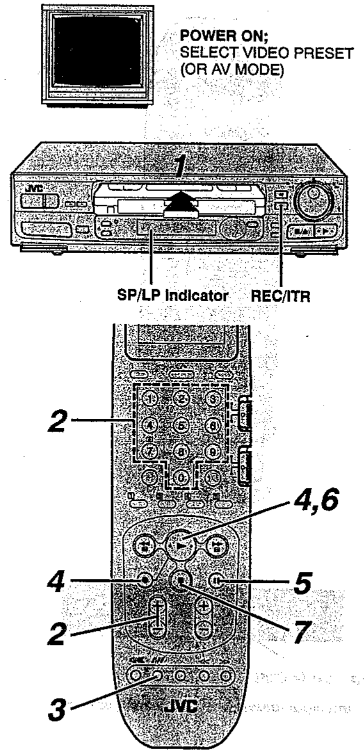
NOTE:

- Some TV sets may malfunction in response to the B mode. If this happens switch back to the A mode.

Basic Recording

TV signals being received by the recorder's built-in tuner can be recorded onto a video tape.
You can "capture" a TV programme using your video recorder.





LOAD A CASSETTE

1 Insert a cassette with the safety tab in place and the counter will be reset to 0:00:00.
- The recorder power will come on automatically.

CHOOSE A PROGRAMME

2 Press TV PROG. or the numeric keys to select the preset you wish to record.

SELECT THE TAPE SPEED

3 Press /// (SP/LP).
- Check the SP/LP indicator on the recorder to confirm the selected tape speed.

TO START RECORDING

4 Press ● (Record) and ▶ (Play) simultaneously.

TO PAUSE RECORDING

5 Press ❚❚ (Pause).

6 Press ▶ (Play) to resume recording.

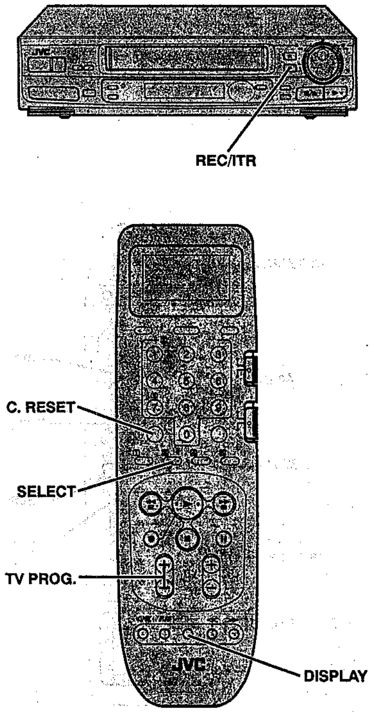
TO STOP RECORDING

7 Press ■ (Stop).

NOTES:

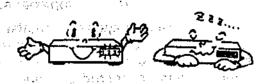
- *To start recording with the recorder's REC/ITR button, press it once on its own. Pressing REC/ITR more than once activates the Instant Recording (ITR) function. ☞ p. 26.*
- *After pause, when recording is resumed, a few frames recorded before the pause may be overlapped by the new recording. This is meant to reduce picture distortion and is not a malfunction.*
- *The recorder automatically stops when record-pause continues for more than 5 minutes.*
- *If the Record button does not work, check to see if the cassette's safety tab has been removed.*
- *The preset cannot be changed while recording is in progress. To change the preset, engage the record-pause mode, then change the preset.*
- *The recorder automatically rewinds when the end of the tape is reached during recording.*
- *The recorder automatically marks index codes at the beginning of each recording. For information on the Index Search function, ☞ p. 22.*

Recording



Instant Recording (ITR)

You can start a recording and then set the recorder to shut off automatically after a set duration.



During Record:

1. Press REC/ITR. "ITR" and "0:30" indications appear, advising that power will switch off after 30 minutes.
2. Press REC/ITR again to delay the off-time by 30-minute increments (up to 4 hours).
   - For more precise setting, use the remote control's SELECT and TV PROG. buttons to set the exact time required (possible up to 8 hours and 59 minutes).

To Watch Another Programme While Recording

During Record:

1. Use the preset controls on the TV to select the other station you wish to view.
   - The programme selected with the TV's preset controls will appear on the TV screen while the one selected with the video recorder's TV PROG. buttons will be recorded on the tape.

Elapsed Recording Time Indication

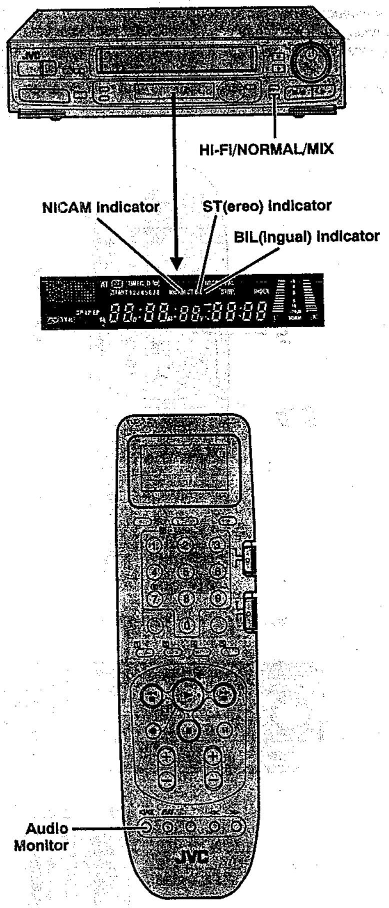
When you need to know the exact time of a recording.

1. Press DISPLAY until a counter reading appears on the display panel.
2. Press C.RESET before starting recording or playback.
   - The counter will be reset to "0:00:00" and show the exact elapsed time as the tape runs.

Display Button

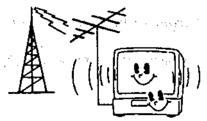
When you wish to check the clock time, date, or counter reading.

1. Press DISPLAY to display the current clock time.
2. Press DISPLAY again to display the current date.
3. Press DISPLAY again to display the counter reading.



Receiving NICAM Stereo And Bilingual Programmes

Your recorder is equipped with a Digital stereo sound decoder for reception of NICAM stereo and bilingual broadcasts.



- When a stereo programme is being received, the NICAM and ST(ereo) indicators light.
- When a bilingual programme is being received, the NICAM and BIL(ingual) indicators light.
- When a monoaural programme is being received, the NICAM indicator lights.

To Record NICAM Stereo And Bilingual Programmes

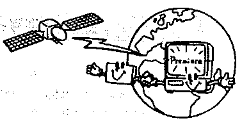
- The NICAM audio programme will be recorded on the Hi-Fi audio track, and the Standard audio programme on the normal audio track.
- To listen to a stereo programme, select "HIFI L+R" by pressing Audio Monitor.
- To listen to a bilingual programme, select either "HIFI L" or "HIFI R" as required.
- To listen to the Standard audio programme, select "NORM" using the HI-FI/NORMAL/MIX button on the recorder.

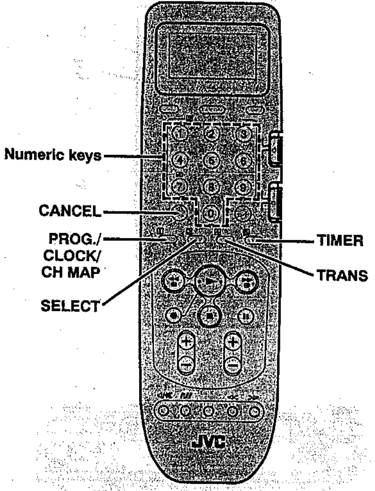
NOTE:

- *Bilingual programmes are not transmitted in the U.K. at present.*

Information On Video Plus+

With Video Plus+, timer programming is greatly simplified because each TV programme has a corresponding code number which your recorder and remote control are able to recognise. The following information will help you maximise the benefits of this feature, especially if your AV system has cable or satellite capabilities.





Video Plus+ Operation Buttons

PROG./CLOCK/CH MAP button
- If the clock has not been set, press once to set the clock.
- If the clock has already been set, each press rotates the display: Video Plus+ Timer Program → LCD Timer Program → Clock Set mode → Channel Map mode

Numeric keys
- Press to enter a PlusCode number.

SELECT button
- After entering a PlusCode, press to check or correct the entered data.
- While the remote control is in the Channel Map mode, press to set the GUIDE PROG. and TV PROG. numbers.
- While the remote control is in the Channel Map mode, press to check the entered channel numbers.

TRANS button
- Press to transfer the data to the recorder.

TIMER button
- Press to engage the recorder's timer mode

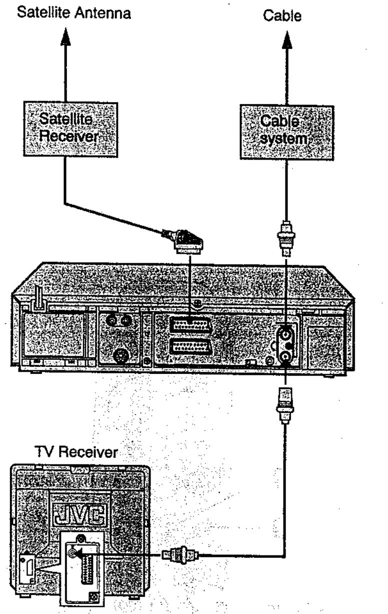
CANCEL button
- If you have entered the wrong PlusCode number, press to backspace.
- While the remote control is in the Channel Map mode, press to cancel the entered channel numbers.

NOTES:
- **CH MAP:** *To use Video Plus+, it is necessary to let the remote control know both the preset position numbers for local TV stations you have set on your video recorder, and the GUIDE PROG. numbers for those TV stations. The "list" of presets and GUIDE PROG. numbers created in the remote control's internal memory is called the "Channel Map" (CH MAP).*
- **GUIDE PROG.:** *The assigned TV station numbers, according to broadcast area, for Video Plus+ timer-recording. The GUIDE PROG. numbers 1 through 4 are for BBC1, BBC2, ITV and CH4 respectively. For other TV stations, refer to your TV directory.*

TIMER PROGRAMMES ARE ALSO POSSIBLE FROM A SATELLITE RECEIVER AND/OR A CABLE SYSTEM.

PLEASE ENTER THE PRESET POSITIONS YOU HAVE CHOSEN FOR THESE SYSTEMS IN YOUR VIDEOPLUS REMOTE CONTROL.

IN THE EXAMPLE SHOWN, THE SATELLITE RECEIVER IS SHOWN CONNECTED TO THE "AU" (SCART) CONNECTION AND THE CABLE SYSTEM CONNECTED VIA THE AERIAL SOCKET AND TUNED TO PRESET POSITION 5 ON YOUR TV.



NOTES:
- *After selecting the programme you wish to record from your cable system or satellite receiver, set the system's timer — if your cable or satellite receiver does not have a timer leave it switched on.*
- *When the remote control's batteries are replaced, the time or Guide Channel numbers you have set may be erased. If this happens, reset them again.*

To Record Satellite And Cable System Programmes

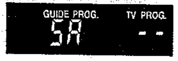
If using a satellite receiver, follow steps ①–⑥.
If using a cable system, follow steps ❶–❼.
If using both, follow all steps.

PREPARATION

①❶ Connect a cable system or a satellite receiver as illustrated.

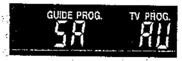
❷ Set the recorder so that cable presets can be viewed on preset position "5". (☞ p. 18.)

②❸ Press CH MAP until the LCD shows the Channel Map mode.

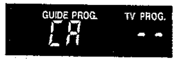


("SA" = Satellite)

③ Use the numeric keys to enter "00" for TV PROG. number.
- "AU" will appear instead of a preset number.

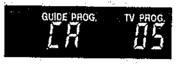


④❹ Press SELECT.

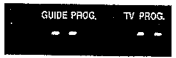


("CA" = Cable system)

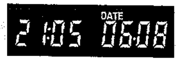
❺ Use the numeric keys to enter "05" for TV PROG. number.



⑤❻ Press SELECT.



⑥❼ Press CH MAP.
- The LCD will return to the clock display.

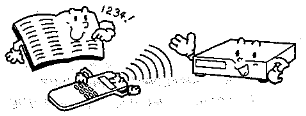


OPERATION

1. Turn on the cable system or satellite receiver, and select the preset you wish to record.
2. Enter the PlusCode number in the same way as shown in steps 1 – 8 of "Video Plus+ Timer-Recording" on p. 30 – 31.

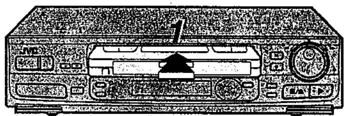
Video Plus+ Timer-Recording

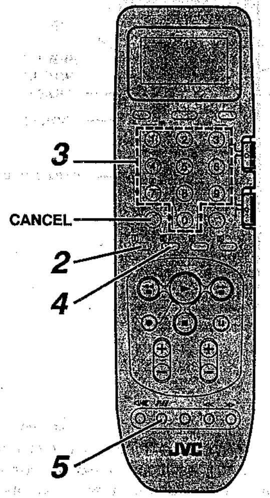
Your video recorder provides a variety of timer programming methods, including Video Plus+. The built-in Video Plus+ programming system greatly simplifies timer programming because you won't have to enter all the data that is usually necessary (such as date, start and stop time, and channel). Simply key-in the PlusCode number for the TV programme you wish to record (listed in most TV directories) and then transfer it to the recorder. Another timer programming method available is the Remote Control's LCD Record Timer (☞ p. 32). TIMER PROGRAMMING IS NOT POSSIBLE UNLESS THE CLOCK HAS BEEN SET. (☞ p. 16)



IMPORTANT

In "Tuning In Your Video Recorder To Local TV Station" (☞ p. 18), make sure you have selected preset positions 1 through 4 for BBC1, BBC2, ITV and CH4 respectively.



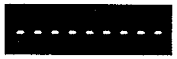


LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.

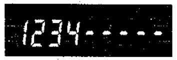
ACTIVATE THE VIDEO PLUS+ MODE

2 Press PROG.



INPUT THE TV PROGRAMME'S CODE NUMBER

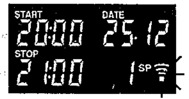
3 Press the appropriate numeric keys to enter the PlusCode number for the TV programme you wish to record.



- For PlusCode numbers, refer to your newspaper or TV directory.
- The length (number of digits) of the code number differs by programme.
- If you made a mistake, press CANCEL to backspace and re-enter the correct PlusCode number.

CHECK IF DATA IS CORRECT

4 Press SELECT.
- The LCD will show the data for the PlusCode number you just entered.
- If the data is not correct, press PROG twice and re-enter the correct PlusCode number.



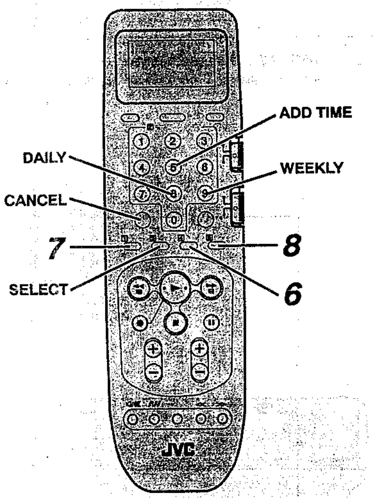
Example

- If the entered PlusCode number is not proper, "Error" appears on the LCD. Check the PlusCode number again and re-enter it.
- If a PDC adapter is connected the recorder and you wish to take advantage of PDC recording (☞ p. 34), press ⊡ (the numeric key "7") so that "⊡" appears on the LCD.

SELECT THE TAPE SPEED

5 Press //// (SP/LP).

(Continued on next page.)



TO DISENGAGE THE TIMER

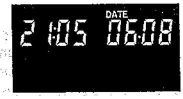
For safety, your recorder disables all other functions while in the timer mode.
- To use your recorder, first disengage the timer mode by pressing TIMER again. Now all functions will be operable.
- To re-engage the timer, press TIMER.

TRANSFER TO THE RECORDER

6 Press TRANS with the remote control directed toward the recorder's Remote Sensor window.
- Transfered program will appear on the display panel, telling you that the data has been successfully transferred to the recorder's memory.

END PROGRAMMING

7 Press the appropriate numeric keys to enter the PlusCode number for the TV programme you wish to record.



- The LCD returns to the clock display and the entered data will be automatically cleared.
- If you need to set another program, repeat steps 2 – 7.

SET TO TIMER MODE

8 Press TIMER.
- The recorder will enter the timer mode and power will go off.

To Delay The Stop Time

After you press SELECT in step 4, press the ADD TIME button. Each time the ADD TIME button is pressed, the Stop time is delayed by 5 minutes (5 minutes of recording time is added). You can easily compensate for anticipated programme schedule delays this way.

To Timer-Record Weekly Serials

This function lets you set the recorder to timer-record at the same time on the same day every week.
- After pressing SELECT in step 4, press WEEKLY (the numeric key "9").

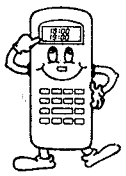
To Timer-Record Daily Serials

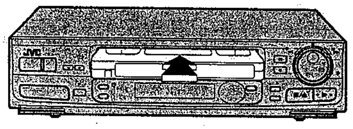
This function lets you set the recorder to timer-record at the same time Monday through Friday.
- After pressing SELECT in step 4, press DAILY (the numeric key "8").

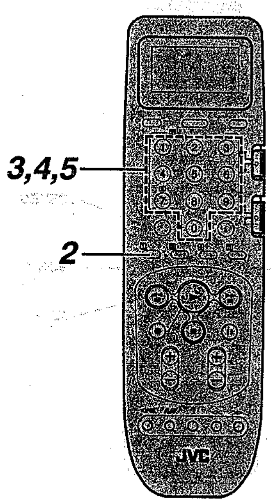
To timer-record CATV or Satellite TV programmes, ☞ p. 29
To cancel a program from the recorder's memory ☞ p. 34
Any questions? ☞ p. 28 – 29, 35

Remote Control's LCD Record Timer

The remote control's LCD programming method introduced here lets you input all necessary settings manually. It's helpful if the PlusCode for the TV programme you want isn't readily available. TIMER PROGRAMMING IS NOT POSSIBLE UNLESS THE CLOCK HAS BEEN SET.





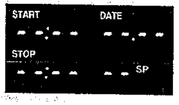


LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.

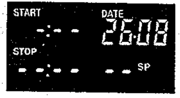
ACCESS THE LCD TIMER PROGRAM

2 Press PROG. twice.



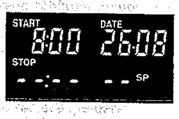
INPUT THE DATE

3 Press the appropriate numeric keys.
- Example: For 26th August, press 2 6 0 8.



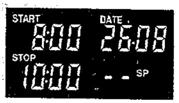
INPUT THE START TIME

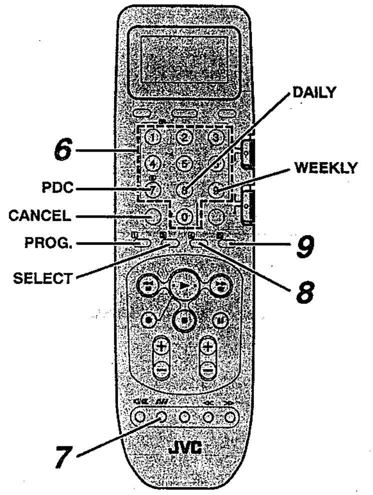
4 Press the appropriate numeric keys.
- Example: For 8:00, press 0 8 0 0.



INPUT THE STOP TIME

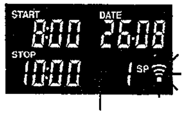
5 Press the appropriate numeric keys.
- Example: For 10:00, press 1 0 0 0.





INPUT THE PRESET NUMBER

6 Press the appropriate numeric keys.
- Example: Press "1" for BBC 1, if BBC 1 has been stored in preset position 1 during tuning.
- After the preset has been entered, the transfer-ready mark will appear and blink.
- If a PDC adapter is connected to the recorder and you wish to take advantage of PDC recording (☞ p.34), press ⊡ (the numeric key "7") so that "⊡" appears on the LCD.



SELECT THE TAPE SPEED

7 Press //// (SP/LP) to select the tape speed.

TRANSFER THE DATA TO THE RECORDER

8 Press TRANS with the remote control directed to the recorder's Remote Sensor window.
- You will see the program number on the display panel, telling you that the data has been successfully transferred to the recorder's memory.

SET TO TIMER MODE

9 Press TIMER.
- The recorder will enter the timer mode and power will go off.
- If you wish to disengage the timer mode, press TIMER again.
- Press PROG. to cancel LCD Timer Program mode.

TO MAKE CORRECTIONS

- During steps 3 and 6, press CANCEL to backspace and input new data.
- After setting the channel in step 6, press SELECT to make the item you want to change blink, and input new data.
- Pressing PROG. clears the programmed data.

Variations In Step 3 (Weekly Program)

This function lets you set the recorder to timer-record at the same time on the same day every week. Use it to record weekly serials.
- First press numeric key "9" (WEEKLY) and then enter the date.

Variations In Step 3 (Daily Program)

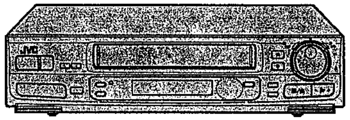
This function lets you set the recorder to timer-record at the same time Monday through Friday. Use it to record daily serials.
- To record a daily serial starting on the day of setting, press numeric key "8" (DAILY) and then press SELECT until the display changes to time input mode.

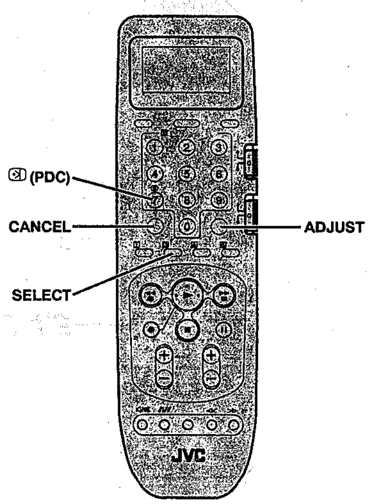
n To record a daily serial starting on a certain day, press numeric key "8" (DAILY) and then enter the date.

NOTE:
- *If you have a satellite tuner connected to the recorder's AV2 IN socket and wish to timer-record satellite programmes, make sure to input "0" for the preset number in step 6 to make "AU" appear on the LCD. After you transfer the data to the recorder, "AU 2" will be displayed instead of a preset number on the recorder's display panel.*

To cancel a program from the recorder's memory, ☞ p. 34.
Any questions? ☞ p. 35.

Other Timer-Recording Information





Some Facts On Timer Operation

- When timer-recording is successfully completed, the recorder's power is automatically switched off.
- Since the timer starts and stops recording based on the time being kept by your video recorder's built-in clock, the clock's time must be accurate for correct timer-recording results.

NOTES (PDC Recording):

- *When you manually enter programmes (i.e. not using Video Plus+), set the start time (PDC time) exactly as advertised in the TV listing. A different time than advertised will result in no recording.*
- *PDC recording is not possible via external input.*

To Check, Cancel And Replace Programs

Since executed programs are automatically cleared from memory (except those for daily and weekly serials), cases where the entire 8-event memory is full should be rare. If this should happen, check the preset programs and cancel one or more to make room for the new program(s) you wish to input.

TO CHECK PROGRAMS

1 Press ADJUST until the program settings are displayed.
- Program 1 is displayed with the number blinking.

2 Press SELECT to review the program contents in succession.

3 To check another program, press ADJUST.

TO REPLACE THE PROGRAM

4 Press SELECT to make the item you want to change blink and press TV PROG. to replace the data.

Or...

TO CANCEL THE PROGRAM

4 Press CANCEL to erase the program from memory.
- You can press CANCEL at any stage while the program is open. The erased program number will be displayed with the number blinking.
- To erase another program, press ADJUST when a blinking program number is displayed.

5 When finished, press DISPLAY.

NOTE:

- *If you wish to timer-record satellite programmes with a satellite tuner connected to the recorder's AV1 IN/OUT connector, be sure to select "AU 1" for the channel after transferring the programmed data to the recorder. Simply follow step 1 and 2 as shown above so that the recorder's channel display blinks and then press TV PROG. to select "AU 1".*

PDC Recording

Now available from some TV stations, PDC (Program Delivery Control) is a service designed to assure safe, accurate timer-recording. With this system, special code signals are transmitted together with the audio/video signals. These code signals control your video recorder and have precedence over advertised times you preset in the timer. This means that your recorder will start and stop recording when the preset TV programmes actually start and end — even if the broadcast time of a preset TV programme is changed.

TO USE PDC SERVICE

- Connect JVC's optionally available PDC adapter to the PDC/VPS connector of the recorder.
- During Video Plus+ or LCD timer programming, press the ⊡ button (the numeric key "7") before transferring the programme data to the recorder.
- If you wish to cancel "PDC", press the ⊡ button (the numeric key "7") again. Pressing the ⊡ button alternates the setting.

Error Indications

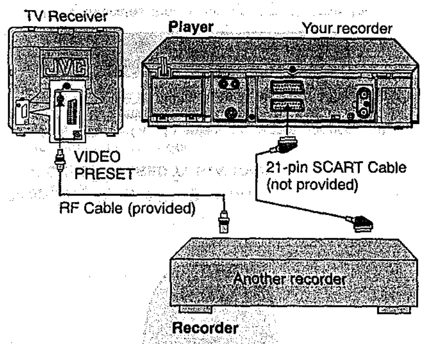
The following error indications may appear on the recorder when you press the TIMER button to engage the timer mode. Here's why, and what you should do.

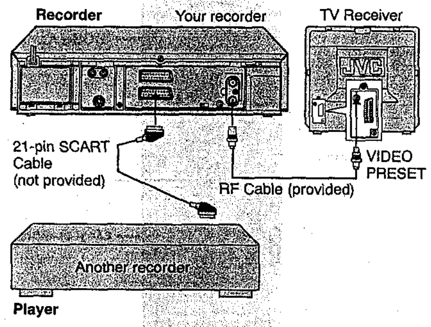
INDICATION	WHY	WHAT TO DO
"TIMER" and "▭" on the display panel continue blinking.	There is no cassette in the recorder.	Insert a cassette.
The cassette is automatically ejected. "TIMER" and "▭" continue blinking.	The inserted cassette has its safety tab removed.	Insert a cassette with its safety tab intact. Or cover the safety tab hole of the cassette with adhesive tape and re-insert it. ☞ p. 12.
"TIMER" blinks for 10 seconds and the timer mode is cancelled.	There are no preset programs in memory, or they have all been incorrectly preset.	Check the programmed data and re-program it as necessary. Press TIMER again.

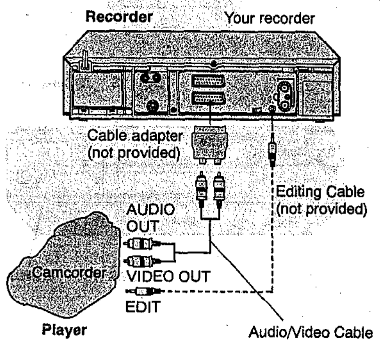
Other Indications

INDICATION	WHY
"TIMER" steady lit (with clock display).	The recorder is in the timer mode. This is the normal display you should see when you press the TIMER button.
" ○ " and "TIMER" steady lit.	Normal display while timer-recording is in progress.
The cassette is ejected, power is shut off and "TIMER" and "▭" are blinking.	This means that the end of the tape was reached while timer-recording was in progress. Therefore, the preset program may not be recorded in its entirety.
"0:00" is blinking.	This means the clock must be set. It's displayed when time-keeping is terminated due to a power failure or because the recorder's power plug was pulled from the AC outlet. To set the clock. ☞ p. 16. If power was interrupted, it's also likely that all preset timer programming data has been erased. Please check and re-program as necessary.
"-- -- -- -- --" is displayed for about 5 seconds when the TRANS button is pressed.	Data was not successfully transferred. The program may have been incorrectly preset, or the recorder's clock has not been set, or all the recorder's timer programs (1 – 8) are preset. Check the LCD program, and re-program as necessary. Transfer the correct data. Or cancel unnecessary programs, and transfer again.

Editing


TV Receiver
Player
Your recorder
VIDEO PRESET
21-pin SCART Cable (not provided)
RF Cable (provided)
Another recorder
Recorder


Recorder
Your recorder
TV Receiver
21-pin SCART Cable (not provided)
VIDEO PRESET
RF Cable (provided)
Another recorder
Player


Recorder
Your recorder
Cable adapter (not provided)
Editing Cable (not provided)
AUDIO OUT
Camcorder
VIDEO OUT
EDIT
Player
Audio/Video Cable (not provided)

Editing To/From Another Video Recorder

Your video recorder can be used as either the recording deck or the source player when editing tapes.

PREPARATION

1. Connect the player's AUDIO/VIDEO connector to the recorder's AUDIO/VIDEO connector.
   - When using your recorder as the source player, connect the AV1 IN/OUT connector to the recording deck. When using your recorder as the recording deck, both AV1 IN/OUT and AV2 IN connectors can be used.

OPERATION

2. Set the recorder's input mode to AUX.
   - With this recorder, press TV PROG. to select the connector being used; "AU 1" for AV1 IN/OUT connector, or "AU 2" for the AV2 IN connector.
3. Put the player in the Play mode.
4. Put the recorder in the Record mode.

NOTE:
Suitable leads can be obtained from your dealer.

Editing From A Camcorder

Tape-to-tape editing is also possible using a camcorder (equipped with playback facility) as the player and your deck as the recorder.

PREPARATION

1. Connect the camcorder's AUDIO/VIDEO OUT connector to the recorder's AUDIO/VIDEO connector.

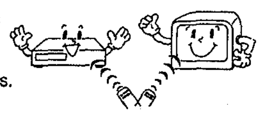
OPERATION

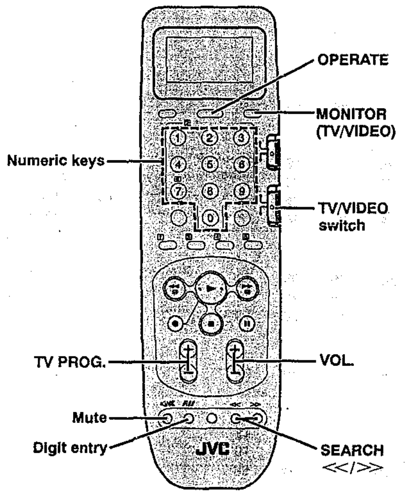
2. Press TV PROG. to select the connector being used; "AU 1" for the AV1 IN/OUT connector, or "AU 2" for the AV2 IN connector.
3. Put the camcorder in the Play mode.
4. Put the recorder in the Record mode.

NOTE:
- *If the JVC camcorder is equipped with the Master Edit Control system, you can control the recorder using the camcorder's controls. See the camcorder's instruction manual for operating procedures.*

Using The Remote Control For TV Operation

The provided remote control can operate the basic functions of your television. In addition to JVC televisions, other manufacturers' televisions listed here can also be controlled by setting the remote control to the corresponding TV code. The remote control's default code is "1", which enables control of most JVC televisions.




OPERATE
MONITOR (TV/VIDEO)
Numeric keys
TV/VIDEO switch
TV PROG.
VOL.
Mute
Digit entry
SEARCH <</>>
JVC

CODE	TV BRAND NAME
1	JVC
2	SONY
3	PANASONIC
4	PHILIPS
5	FERGUSON
6	HITACHI
7	TOSHIBA
0	MITSUBISHI

IMPORTANT
Although the provided remote control unit is compatible with JVC televisions, as well as many TV models manufactured by others, it is possible that the provided remote control will not work with your TV, or in some instances, will have limited function capability.

TV Code Setting

Your remote control can operate the basic functions of your TV set. In addition to JVC televisions, other manufacturers' televisions listed on the left can also be controlled by setting the remote control to "TV". If your television is a JVC (Code 1), you don't have to set the TV code in step 2.

1. Set the TV/VIDEO switch to "TV".
2. While holding down the OPERATE button, press the numeric keys corresponding to the code number for your TV's brand.
   - Press OPERATE to turn the TV power on.
   - Press MONITOR (TV/VIDEO) to set the TV for TV or VIDEO (or AV) mode.
   - Press TV PROG. to select the TV's preset.
   - Press VOL. to adjust the TV's sound volume.
   - Press Mute to mute the TV's sound.
3. To operate your recorder, set the TV/VIDEO switch back to "VIDEO".

NOTES:
- The MONITOR (TV/VIDEO) button does not function with televisions using Code 5.
- With some televisions, the OPERATE button functions only to turn the TV power off, and the MONITOR (TV/VIDEO) button functions only to switch the TV to the VIDEO (AV) mode.
- Whenever you replace batteries in the remote control, it is necessary to re-set the TV code if your television is not a JVC TV.

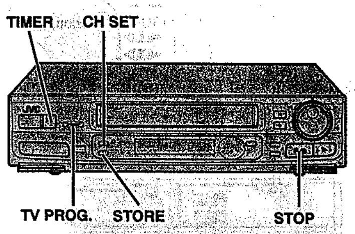
To Control Your Television With Additional Buttons

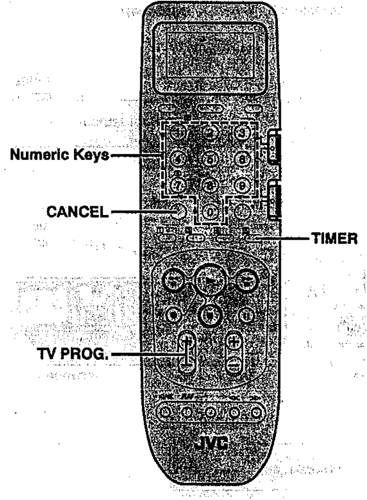
The numeric keys can also be used to select the TV's channel by setting the remote control to the TV mode.

1. Set the TV/VIDEO switch to "TV".
2. Use the numeric keys and the Digit entry button or the SEARCH <</>> buttons to select the TV's channel.
   - With televisions using Code 1, 2, 3, 4, or 5 the Digit entry button corresponds to the 1-digit/2-digit entry switching button (often labelled -/--) of your TV's remote control.
   - With a JVC television using Code 1 the SEARCH << button corresponds to the 10 + button, and the SEARCH >> button, to the 20 + button of your TV's remote control.

NOTES:
- The way these buttons are used is determined by your TV. Use these buttons as instructed for your TV's remote control.

Station Presetting





Changing Preset TV Stations

TO CHECK STORED TV STATIONS

First turn on the recorder.

1. Press TV PROG. to select the preset position of the stored TV station whose number you want to know.
2. Press CH. SET until the display shows the following.

1 Ch 26

- ■ This indicates that preset position 1 stores the TV station on channel 26.

3. To check other preset positions, press TV PROG.
4. Press STOP to disengage the tuning mode.

TO DELETE STORED CHANNELS

First turn on the recorder.

1. Press TV PROG. to select the preset position you want to delete. (e.g. PR. 1)
2. Press CH SET until the display shows the following.

1 Ch 26

3. Press CANCEL.

1 Ch:26

Colon will appear.

- ■ This indicates that preset position 1 can no longer be chosen by TV PROG. buttons.

4. Press STOP to disengage the tuning mode.

TO STORE NEW TV STATIONS

First turn on the recorder.

1. Press CH SET until the display shows the following.

1 Ch 26

2. Press TIMER.
   - ■ The channel number starts blinking.
3. Press numeric keys to input the channel number you want to store. (e.g. Ch 40.)

1 Ch 40

4. Press numeric keys to input the number of a vacant preset position (e.g. 6).

6 Ch:40

5. Press STORE.

6 Ch 40

Colon will disappear.

6. Press STOP to disengage the tuning mode.

TV Station Channel Number Guide

Only the main stations are listed. There are in addition many relay stations, and full lists are available from BBC and ITC.

	BBC1	BBC2	ITV	CH4
London & South-East				
Bluebell Hill	40	46	43	65
Crystal Palace	26	33	23	30
Dover	50	56	66	53
Heathfield	49	52	64	67
Oxford	57	63	60	53
South-West				
Beacon Hill	57	63	60	53
Caradon Hill	22	28	25	32
Huntshaw Cross	55	62	59	65
Redruth	51	44	41	47
Stockland Hill	33	26	23	29
Channel Islands Fremont Point	51	44	41	47
South				
Hannington	39	45	42	66
Midhurst	61	55	58	68
Rowridge	31	24	27	21
West				
Mendip	58	64	61	54
East				
Sandy Heath	31	27	24	21
Sudbury	51	44	41	47
Tacolneston	62	55	59	65
Midlands				
Ridge Hill	22	28	25	32
Sutton Coldfield	46	40	43	50
The Wrekin	26	33	23	29
Waltham	58	64	61	54
North				
Belmont	22	28	25	32
Emley Moor	44	51	47	41

	BBC1	BBC2	ITV	CH4
North-West				
Caldbeck	30	34	28	32
Winter Hill	55	62	59	65
North-East				
Bilsdale West Moor	33	26	29	23
Chatton	39	45	49	42
Pontop Pike	58	64	61	54
Scotland				
Angus	57	63	60	53
Black Hill	40	46	43	50
Sandale	22	—	—	—
Caldbeck	—	34	28	32
Creigkelly	31	27	24	21
Darvel	33	26	23	29
Durris	22	28	25	32
Eitshal	33	26	23	29
Keelylang Hill	40	46	43	50
Knock More	33	26	23	29
Rosemarkie	39	45	49	42
Rumster Forest	31	27	24	21
Selkirk	55	62	59	65
Wales				
Blaenplwyf	31	27	24	21
Carmel	57	63	60	53
Llanddona	57	63	60	53
Moel-y-Parc	52	45	49	42
Presely	46	40	43	50
Wenvoe	44	51	41	47
Northern Ireland				
Brougher Mountain	22	28	25	32
Divis	31	27	24	21
Limavady	55	62	59	65

Glossary

The following glossary is for your convenience in helping you better understand your VCR and its operation.

AV: Short for Audio/Video. Often refers to separate audio (sound) and video (picture) signals which, when combined, make up a program.

AV Connection: Type of VCR-to-TV connection in which the VCR's AUDIO OUT and VIDEO OUT terminals are connected to the TV's AV IN terminals. Audio and video signals are sent separately and directly to the TV without having to modulate them into RF signals.

Cassette Adapter: Provided with most Compact VHS camcorders, and also available optionally, it allows VHS-C cassettes to be played (and recorded) on VHS VCRs just like full-size VHS cassettes.

CH MAP: To use Video Plus+, it is necessary to let the remote control know both the preset position numbers for local TV stations you have set on your video recorder, and the GUIDE PROG. numbers for those TV stations. The "list" of presets and GUIDE PROG. numbers created in the remote control's internal memory is called the "Channel Map" (CH MAP).

Editing: Refers to dubbing or tape-to-tape editing (in which the contents of a tape in one video unit are copied to another tape in a second video unit), and to creative editing (in which video programming is actually modified to create something different from the original).

FDP: Short for Fluorescent Display Panel, which is the type of display panel used on this VCR.

GUIDE PROG.: The assigned TV station numbers, according to broadcast area, for Video Plus+ timer-recording. The GUIDE PROG. numbers 1 through 4 are for BBC1, BBC2, ITV and CH4 respectively. For other TV stations, refer to your TV directory.

Head: An electronic component which "writes" or "reads" video and audio signals on the tape.

Head Drum: A drum-shaped cylindrical assembly on which the video heads are located. It rotates at high speed, allowing the heads to "write" and "read" diagonal signal tracks on the video tape.

Hi-Fi VHS Stereo: High quality stereo sound recording/playback system developed by JVC. Uses rotary FM-audio heads which scan the tape helically at high speed.

HQ (High Quality): An enhancement feature in the VCR circuitry which provides greater picture detail.

ITR: Short for Instant Timer Recording. While the VCR is recording, pressing the REC/ITR button allows you to set the VCR to automatically stop recording (and turn off) after a certain amount of time.

LCD: Short for Liquid Crystal Display.

Mode: The status of the VCR (the operating feature being used) at any given time. (e.g. The tape is being rewound = the VCR is in the Rewind mode.)

NICAM (Near Instantaneous Companded Audio Multiplex): System developed by the BBC and adopted in the U.K. and several other countries for stereo TV sound broadcasting.

Noise: Video noise; various types of picture distortion including pulsing, streaking, and "snow". Some types are unavoidable, such as during high-speed search, while others are the result of weak TV signals or clogged video heads.

NTSC (National Television Standards Committee): The television broadcasting system used in the U.S., Japan, and other nations primarily in the Americas.

PAL (Phase Alternate Line): The colour television broadcasting system adopted in the U.K., much of Western Europe, and many other regions.

PDC (Program Delivery Control): A service designed to assure safe, accurate timer-recording by automatically compensating for changes in the broadcast schedule (such as delays and late-running programmes).

Preset Position: The "channel" numbers which are shown on the display of your video recorder, and used when choosing a station to record or timer-record. They are set during "Tuning In Your Video Recorder To Local TV Stations" procedure.

Realtime Counter: The VCR's tape counter shows tape time precisely in hours, minutes and seconds (unlike simple sequential counters). The counter resets automatically when a cassette is inserted.

RF Cable: Black insulated round cable used to connect the VCR to the TV.

RF Connection: Type of VCR-to-TV connection in which the VCR's RF (Radio Frequency) OUT terminal is connected to the TV's ANTENNA terminal. The VCR essentially "broadcasts" the program to your TV on channel 36.

Scart: A 21-pin connector used to send/receive video and audio signals between video and audio products. Also known as a Peritel connector or a Euroconnector.

Special Effects: Playback modes other than normal-speed forward playback; includes still playback (stop motion), slow motion, and high-speed visual search.

Super VHS: A version of the VHS format which was developed to provide pictures with over 400 lines of horizontal resolution. This VCR can handle standard VHS signals only, and cannot record or play back Super VHS signals.

Tape Speeds: This determines how fast the tape travels during a recording.

SP (Standard Play):
Fast tape speed. Provides recording time of about 3 hrs. per E-180 cassette, and 4 hrs. per E-240 cassette. Most prerecorded software is recorded in SP.

LP (Long Play):
Slow tape speed. Provides recording time of about 6 hrs. per E-180 cassette, and 8 hrs. per E-240 cassette. Useful for multiple-program recording on a single cassette.

Timer-Recording: Using the VCR's built-in clock/timer for automatic, unassisted start and stop of recording.

Tracking: The video head's ability to accurately "read" recorded signals (tracks) without deviating. When tracking deviation occurs, it appears on the screen as vertical jitter and grainy streaks. The Digital Tracking function on this VCR is an extremely accurate automatic tracking system which greatly reduces the possibility of deviations.

TV PROG.: Refers to a "preset position" or the control used to select a preset position. When you set the remote control's channel numbers, the TV PROG. number for any station should be identical to the preset position number on your recorder.

UHF (Ultra High Frequency): Band of frequencies lying between 300 and 3,000 MHz. U.K. colour television broadcasts use the UHF band.

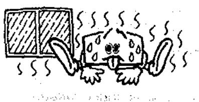
Video Plus+: A simplified system that allows timer-recording of a TV programme by simply keying-in the code number for it.

VCR: Short for Video Cassette Recorder.

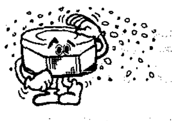
VHS: The video format of this VCR, and the video format most widely used throughout the world. VHS was developed by JVC.

Special Note On Head Cleaning

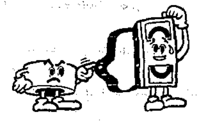
- **Video heads are affected by...,**



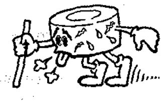
- Heat and humidity



- Dust

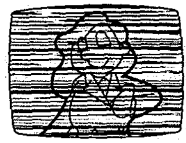


- Damaged dirty tape



- Continuous use

...These may clog the video heads and cause the playback picture to become blurred or interrupted.



If this happens, clean the video heads with the optional cleaning cassette (model number TCL-2) by playing it back for about 10 seconds.

- If it does not produce a better result, please consult your JVC dealer.

In Case Of Difficulties

POWER AND TAPE TRANSPORT PROBLEMS

Symptoms	Check points
No power is applied to the recorder.	■ Is the mains power cord disconnected? — Connect it.
Clock is functioning properly, but the recorder cannot be powered.	■ Is "TIMER" displayed on the display panel? — Press the TIMER button to turn the "TIMER" indicator off.
Tape does not run during recording.	■ Is "PAUSE" displayed on the display panel? — Press the PLAY button to turn the "PAUSE" indicator off.
Tape stops during rewind or fast-forward.	■ Is the C. MEMORY button pressed? — Press again to make "M" disappear from the display panel.
Tape will not rewind or fast-forward.	■ Is the tape already fully rewound or fast-forwarded? — Check the cassette.

RECORDING PROBLEMS

Symptoms	Check points
Recording cannot be started.	■ Is a cassette loaded? ■ Is the safety tab on the cassette removed? — Reseal the slot with adhesive tape.
TV broadcasts cannot be recorded.	■ Has "AU" been selected? — Set to the desired channel.
Tape-to-tape editing is not possible.	■ Is the camcorder or another video recorder correctly connected? ■ Are all necessary power switches turned ON? ■ Has "AU" been selected? — Set to "AU".
Camera recording is not possible.	■ Is the camcorder correctly connected? ■ Has "AU" been selected? — Set to "AU".
Timer recording is not possible.	■ Have you set the clock correctly and programmed the timer correctly? — Check once again. ■ Is "TIMER" displayed on the display panel? — If not, press the TIMER button to display "TIMER".
Video Plus+ does not timer-record properly.	■ Are recorder's preset position numbers set properly ? (☞ p. 18.) ■ Are remote control's preset position numbers set properly ? (☞ p. 29.)

PLAYBACK PROBLEMS

Symptoms	Check points
Playback picture does not appear while the tape is running.	■ If you are using RF OUT connection, ● is the TV receiver's channel selector set to the correct video channel ? — Set it to the RF converter channel (UHF 36). (☞ p.5) ● did you turn the RF switch to OFF by mistake ? — Turn it back to ON. (☞ p. 13) ■ If you are using AV connection, is the TV receiver set to the AV mode? — Set it to the AV mode.
Noise appears during visual search.	■ This is normal.
Noise appears during normal playback.	■ Is the automatic tracking mode engaged? — Try manual tracking. (☞ p. 21)
Noise appears during slow motion playback.	— Try manual tracking. (☞ p. 21)
Noise appears during still playback.	— Press Pause/Still a few times to remove the noise bars from the screen.
Playback picture is blurred or interrupted while TV broadcasts are clear.	■ Video heads may be dirty. — Head cleaning is necessary. Consult your JVC dealer. (☞ p. 41)
Breaks are noticeable in Hi-Fi audio reproduction.	■ Is the automatic tracking mode engaged? — Try manual tracking.

OTHER PROBLEMS

Symptoms	Check points
Whistling or howling is heard from TV during camera recording.	■ Move camcorder or camera's microphone away from TV or reduce TV sound volume.
Remote control's LCD clock time cannot be transferred to the recorder.	■ Is "TIMER" displayed on the display panel?
Channel cannot be switched.	■ Is recording in progress? — Press the Pause button, change the channel, and press the Play button.
Remote control does not function.	■ Are the batteries discharged? — Replace with new ones. ■ Is the A/B code switch set to the appropriate position? ■ Is the TV/VIDEO code switch set to the appropriate position? — Check once again.
The remote control's LCD characters are "hazy" and difficult to read.	— The remote control's batteries are exhausted. Replace both batteries and set the clock again.

ATTENTION:
This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the power off and unplug the power cord. Then plug it in again and switch on. Take out the cassette. After checking the cassette, operate the unit as usual.

SECTION 1
DISASSEMBLY

1.1 DISASSEMBLY FLOW CHART

This flowchart lists shows the disassembly steps for the cabinet parts and P.C. boards in order to gain access to item(s) to be serviced. When reassembling, perform the step(s) in reverse order. Bend,route and dress the flat cables as they were originally.

① Top cover
↓
② Bottom cover
↓
③ Front panel assy
↓
④ SW/JACK & DISPLAY board assies
↓
⑤ Cassette housing assy
↓
⑥ PRE/REC board assy
↓
⑦ DRUM assy
↓
⑧ Main deck assy
↓
⑨ Main board assy

1.2 HOW TO READ THE DISASSEMBLY AND ASSEMBLY

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	4(S1)	
②	BOTTOM COVER	D2	(S2), 7(L1)	
③	FRONT PANEL ASSY	D3	7(L2),*JOG/SHUTTLE	<NOTE 1>
④	SW/JACK & DISPLAY BOARD ASSIES	D4	12(L3),*CN1,	<NOTE 2>
⑤	CASSETTE HOUSING ASSY	D5	4(S3) EARTH PLATE	<NOTE 3>
⑥	PRE/REC BOARD ASSY	D6	2(S4),*CN1 *CN201,*CN202 SHIELD CASE	
↑ (1)	↑ (2)	↑ (3)	↑ (4)	↑ (5)

(1) Order of steps in Procedure
When reassembling, perform the step(s) in the reverse order. These numbers are also used as the identification (location) NO. of parts Figures.
(2) Part name to be removed or installed.
(3) Fig.No. showing procedure or part location
(4) Indentification of part to be removed,unhooked,unlocked, released,unpluged,unclamped or unsoldered. P = Spring, W = Washer, S = Screw, L = Locking tab, * = Unhook,unlock, release,unplug or unsolder.
(5) Adjustment information for installation

1.3 DISASSEMBLY/ASSEMBLY METHOD

STEP /LOC NO.	PART NAME	FIG. NO.	POINT	NOTE
①	TOP COVER	D1	5(S1)	
②	BOTTOM COVER	D2	(S2), 7(L1)	
③	FRONT PANEL ASSY	D3	7(L2),*JOG/SHUTTLE	<NOTE1>
④	SW/JACK & DISPLAY BOARD ASSIES	D4	12(L3),*CN1	<NOTE2>
⑤	CASSETTE HOUSING ASSY	D5	2(S3) ,2(S8) EARTH PLATE	<NOTE3>
⑥	PRE/REC BOARD ASSY	D6	2(S4),*CN1 *CN201,*CN202 SHIELD CASE	
⑦	DRUM ASSY	D7	3(S5),WR1,4(L4) INERTIA PLATE	<NOTE4>
⑧	MAIN DECK ASSY	D8	2(S6),WR2 WR3,2(L5),*CN603	<NOTE5>
⑨	MAIN BOARD ASSY	D9	2(S7)	

<NOTE1>
When reattaching the front panel assy, make sure that the door opener (a) of the cassette housing assy is lowered in position prior to the reinstallation.

<NOTE2>
When plugging the connector in, check that the flat wire is inserted properly and fully.

<NOTE3>
When reattaching the cassette housing assy, pay careful attention to the switch lever not to make it touch the REC switch knob of the REC SAFETY board assy from the upside.
(If the REC switch knob of the REC SAFETY board assy is damaged, cassette loading is impossible.)

<NOTE4>
When plugging the connector in, check that the flat wire is inserted properly and fully.

<NOTE5>
- When removing the Main deck assy only, unhook the two spacers connecting it with the Main board assy with pliers from the back side of the Main board assy first, and then remove the Main deck assy.
- When reattaching the Main deck assy to the Main board assy, make sure to set the spacers into the retaining slots respectively.

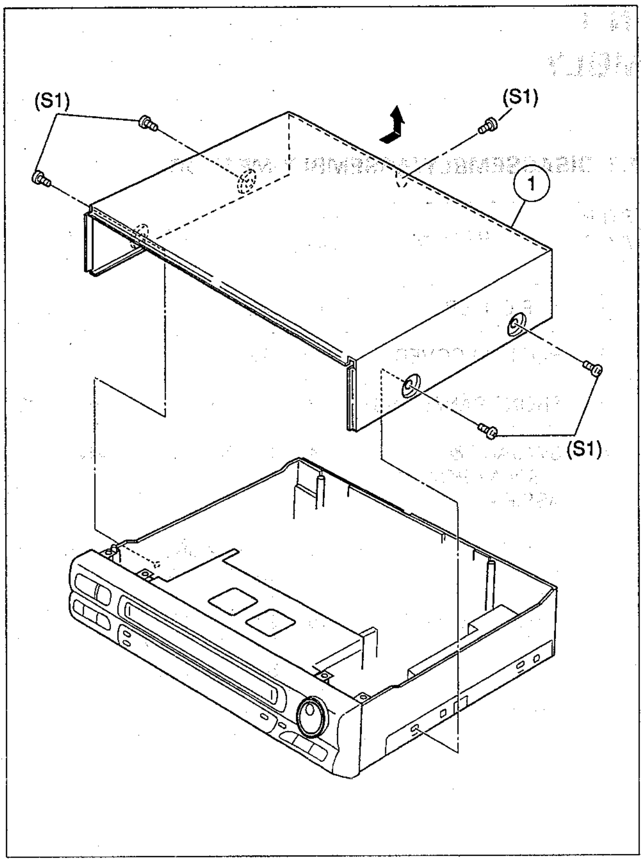


Fig. D1

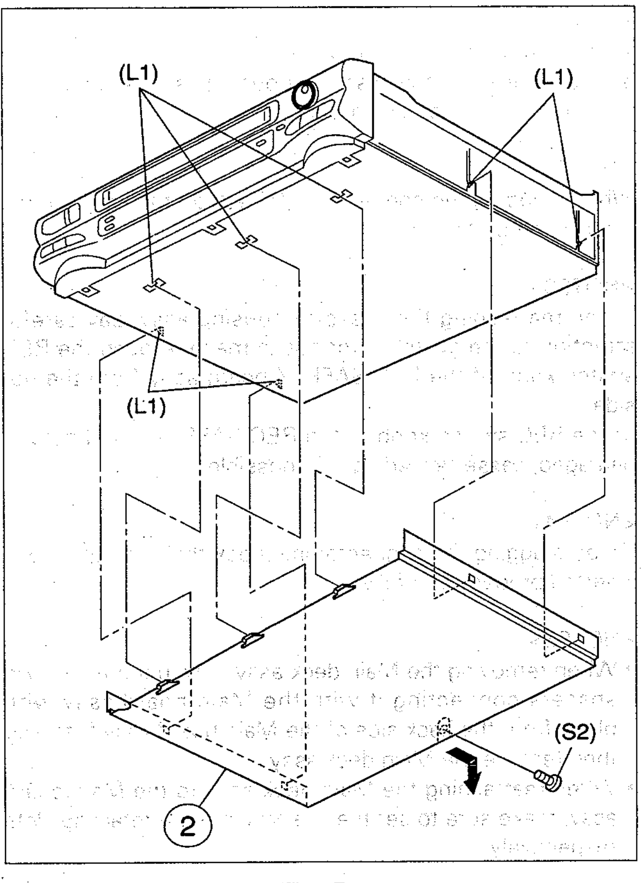


Fig. D2

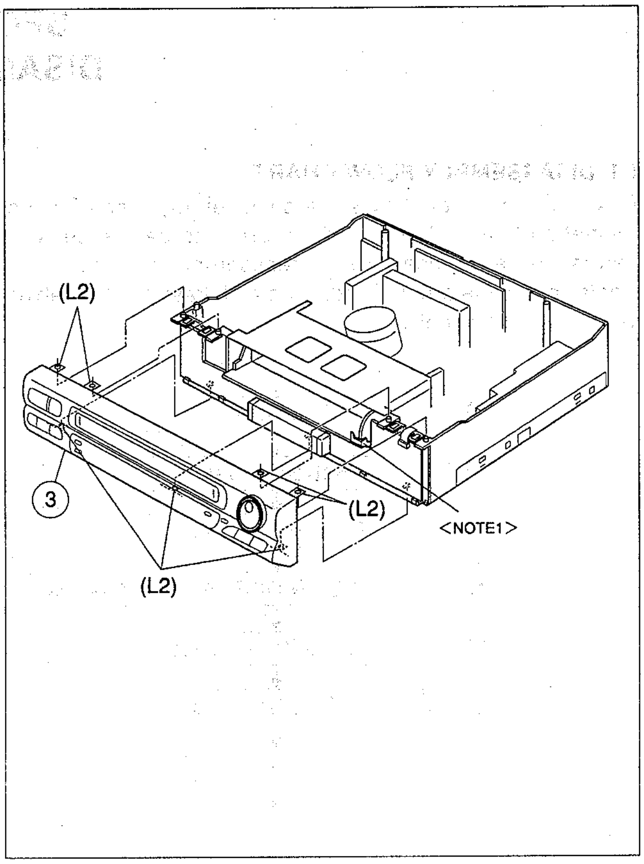


Fig. D3

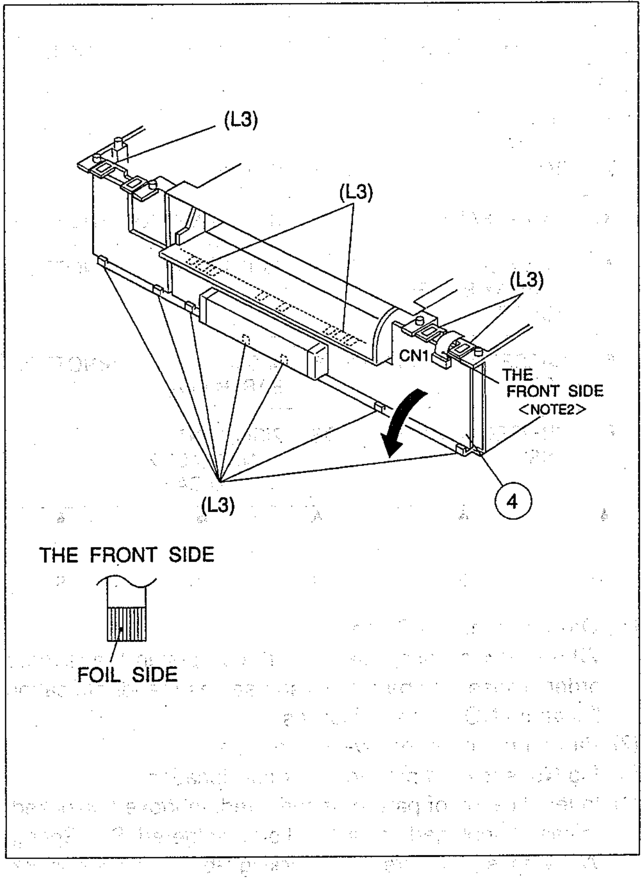

(L3)
(L3)
(L3)
CN1
THE FRONT SIDE
<NOTE2>
(L3)
4
THE FRONT SIDE
FOIL SIDE

Fig. D4

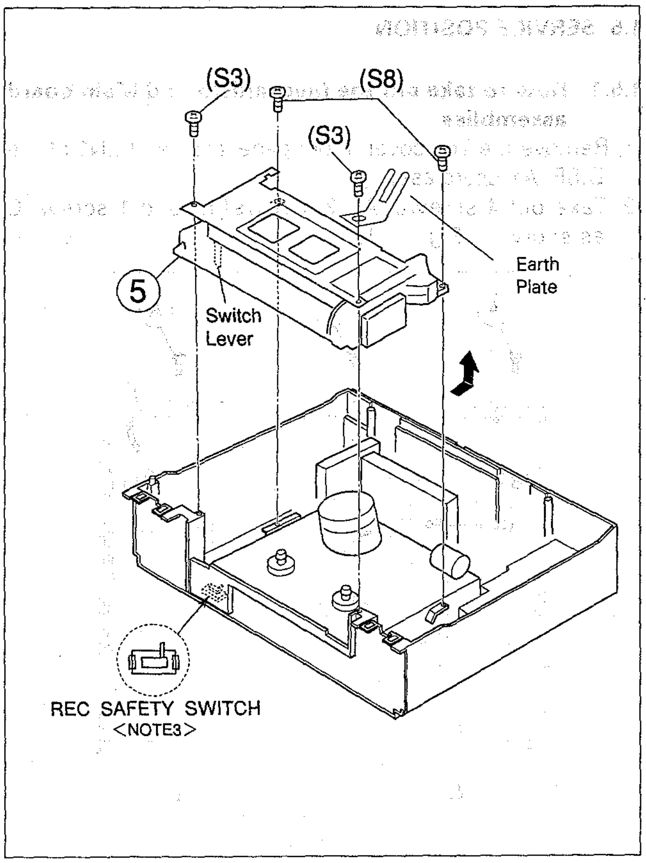

(S3)
(S8)
(S3)
5
Switch Lever
Earth Plate
REC SAFETY SWITCH
<NOTE3>

Fig. D5

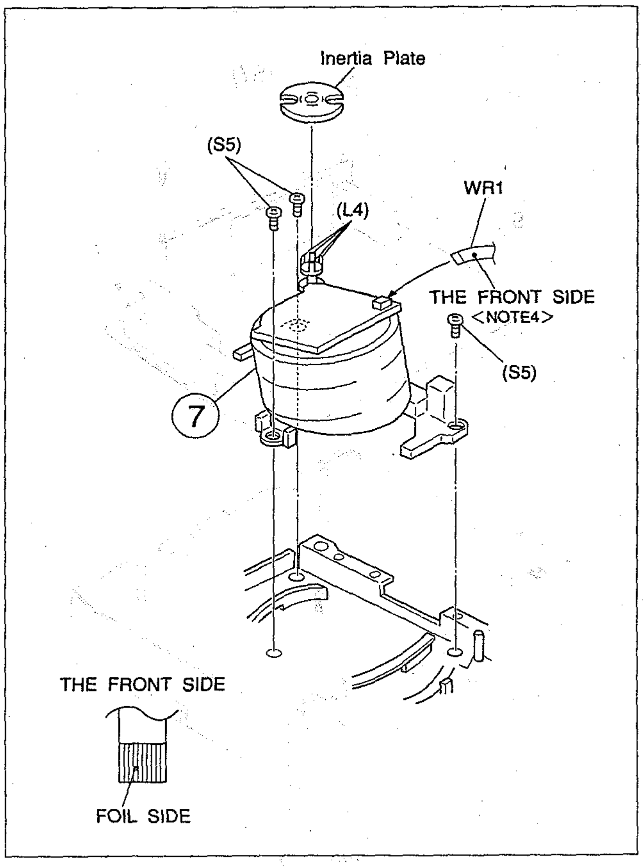

Inertia Plate
(S5)
(L4)
WR1
THE FRONT SIDE
<NOTE4>
(S5)
7
THE FRONT SIDE
FOIL SIDE

Fig. D7

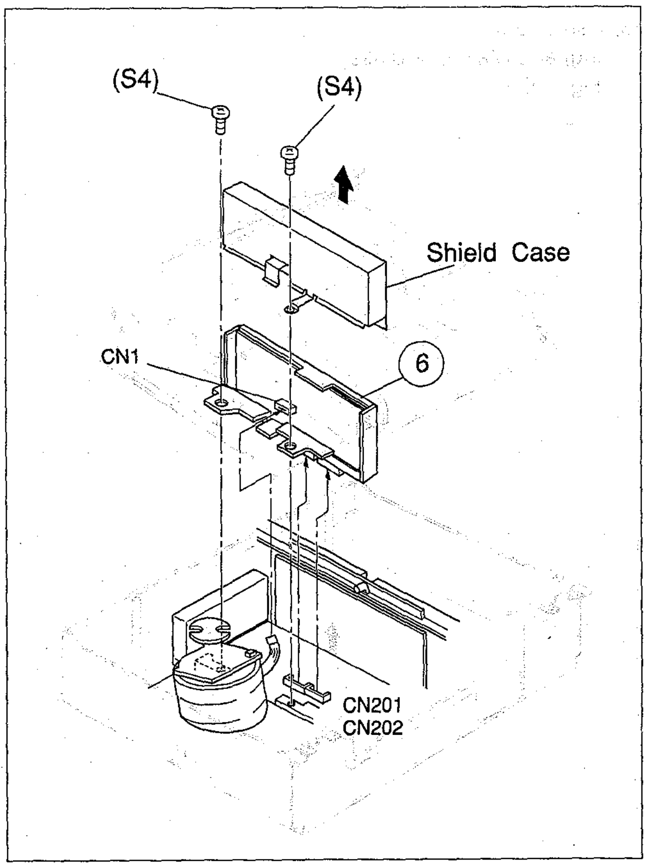

(S4)
(S4)
Shield Case
CN1
6
CN201
CN202

Fig. D6

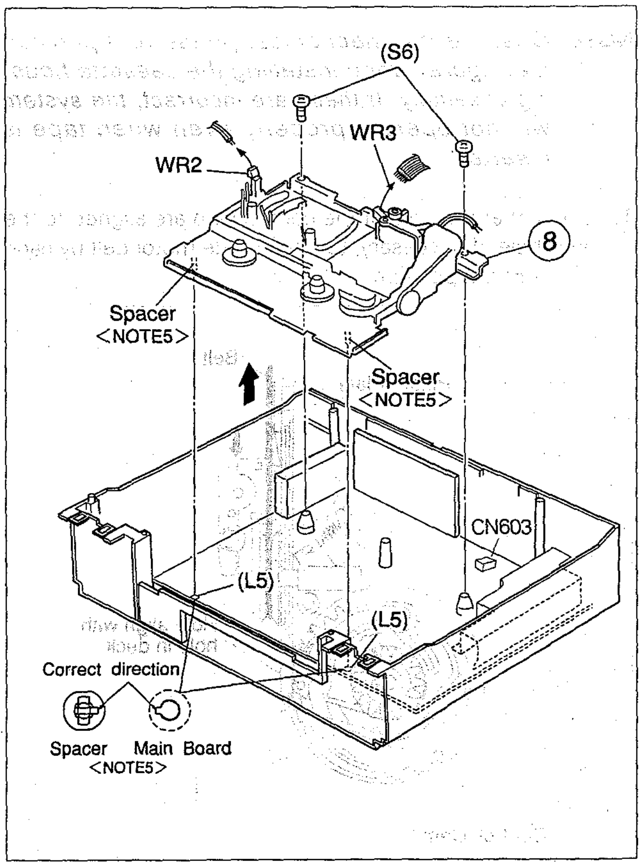

(S6)
WR2
WR3
8
Spacer
<NOTE5>
Spacer
<NOTE5>
CN603
(L5)
(L5)
Correct direction
Spacer
Main Board
<NOTE5>

Fig. D8

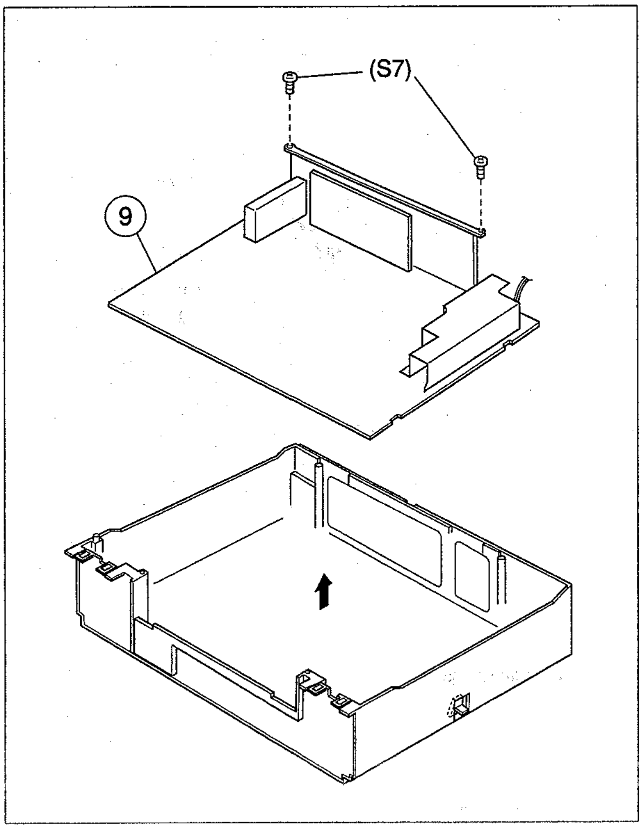


Fig. D9

1.4 CASSETTE HOUSING INSTALLATION

NOTE: *Observe the mechanical phase and position (see figure) when installing the cassette housing assembly. If these are incorrect, the system will not operate properly even when tape is inserted.*

1. Check that the hole of the control cam are aligned to the deck hole. If necessary, turn the mode motor belt by hand to adjust the position.

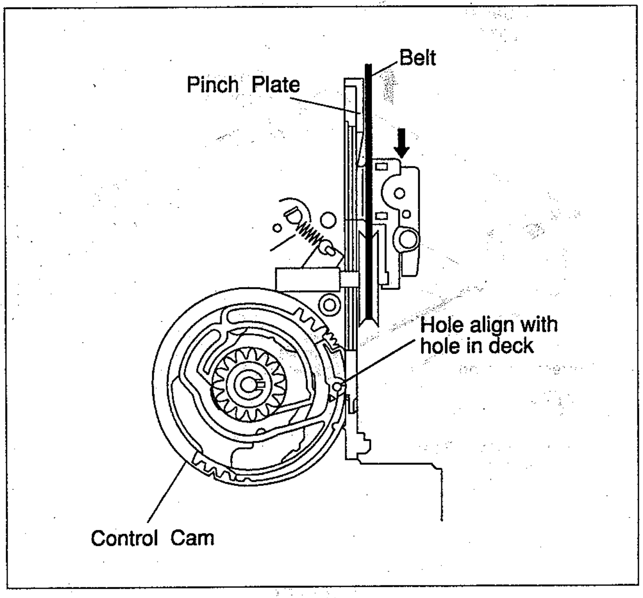


Fig. 1-4-1

1.5 SERVICE POSITION

1.5.1 How to take out the Mechanism and Main board assemblies.

(1) Remove the Top cover, Front panel assy and CN1 of the DISPLAY board assy.

(2) Take out 4 screws Ⓐ 2 screws Ⓑ and 1 screw Ⓒ as shown in Fig.1-5-1.

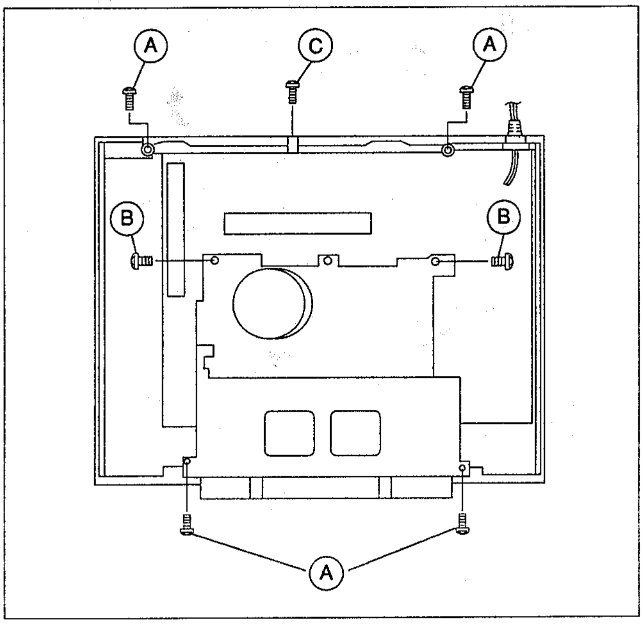


Fig. 1-5-1

(3) Remove the Mechanism assy (including Cassette housing) and Main board assy out of the chassis as shown in Fig. 1-5-2.

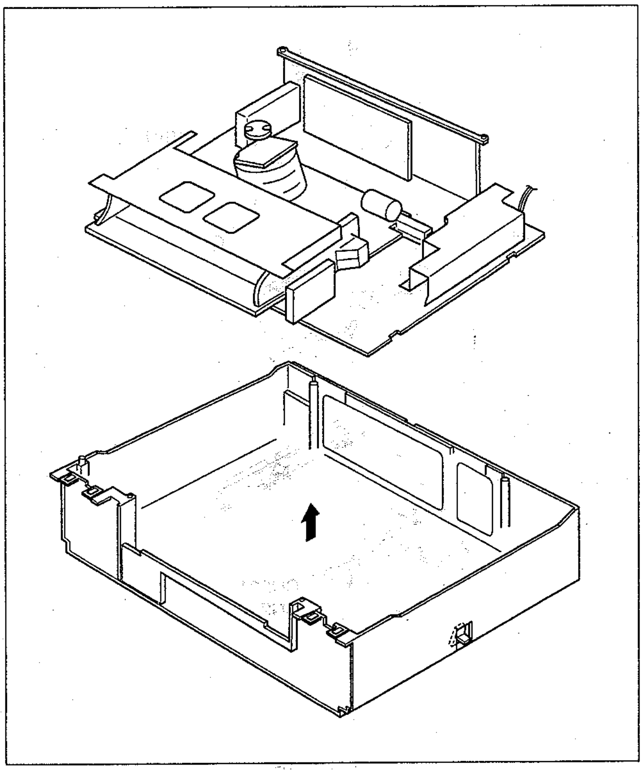


Fig. 1-5-2

(5) Turn over the Mechanism assy and Main board assy then connect CN1 of the DISPLAY board assy.

(6) Carry out checks & repairs as necessary as shown in Fig.1-5-3.

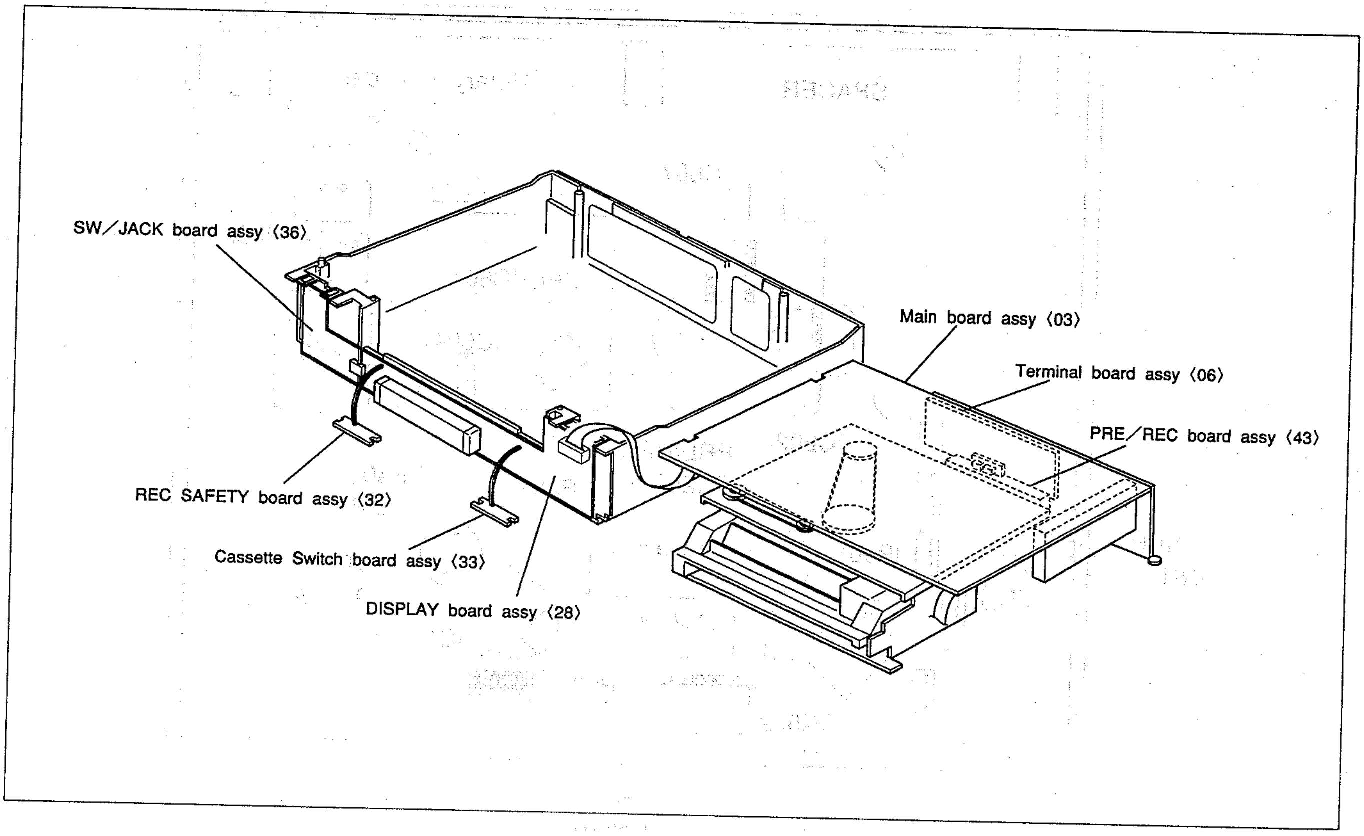


Fig. 1-5-3

1.5.2 Cautions on cassette loading when mechanism is in service position

The REC SAFETY board assembly of this set serves both for detecting the safety tab (erasure prevention tab) of a cassette and detecting a cassette loaded. Therefore, cassette loading in the condition that the mechanism is disassembled from the set needs manual operation of the switches of the REC SAFETY board assembly and the CASSETTE SWITCH board assembly.

1.5.3 Cassette loading and ejecting procedures when mechanism is in service position

(1) Insert a cassette tape halfway into the cassette housing assembly.

(2) Press the switch of the REC SAFETY board assembly to turn on.

(3) When the cassette loading begins and the cassette goes down to the bottom, immediately press the switch of the REC SAFETY board assembly to turn off and hold the status that the switch of the CASSETTE SWITCH board assembly is turned on. (Fix the switch with adhesive tape or put a screwdriver, etc. on it to leave the switch in the ON status.)

(4) In this status, desired operations (recording, playback, fast forward, rewind, etc.) can be performed.

Note: *When the mechanism is in the service position, the safety tab of cassette tape is not detected and recording on cassette tapes without safety tab is possible. Therefore, carefully choose a cassette tape for operation in this mode so as to avoid using cassette tapes of important recording.*

(5) For ejecting the cassette in this status, do it in the reverse order of cassette loading mentioned above.

Note: *If the manual operation REC SAFETY switch timing is incorrect, the cassette may be completely or partially ejected, and the cassette is often ejected incompletely. In such a case, it is possible to take out the cassette by hand.*

If it is desired to load a cassette again after the cassette is ejected in the above procedure, make sure to set the tray of the cassette housing assembly in the frontmost position prior to loading the cassette once again.

1.5.4 Opening on the chassis.

The chassis assy has openings for easy access to the check-points and connector pins as shown in Fig.1-5-4.

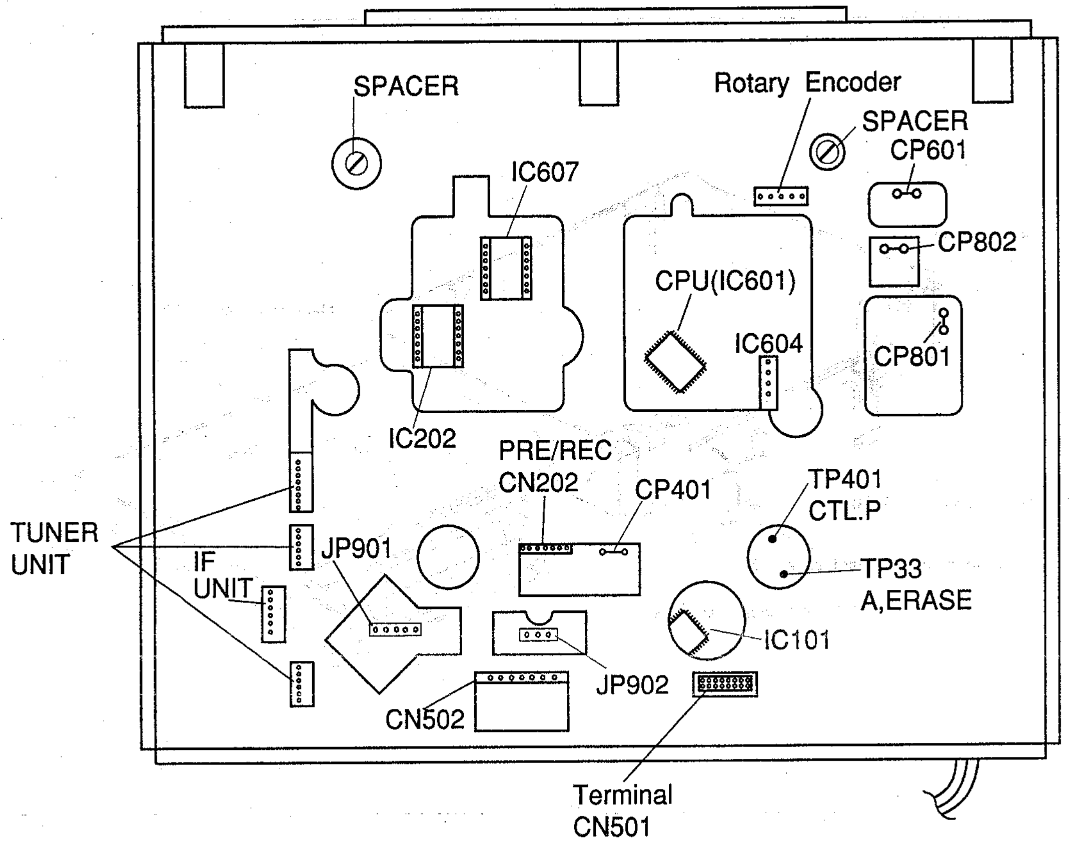

SPACER
Rotary Encoder
SPACER
CP601
IC607
CP802
CPU(IC601)
IC604
CP801
IC202
PRE/REC
CN202
CP401
TP401
CTL.P
TUNER
UNIT
IF
UNIT
JP901
TP33
A,ERASE
IC101
JP902
CN502
Terminal
CN501

Fig. 1-5-4

1.6 MECHANISM SERVICE MODE

This model has a unique function to enter the mechanism into every operation mode without loading of any cassette tape. This function is called the "MECHANISM SERVICE MODE".

1.6.1 How to set the "MECHANISM SERVICE MODE"

(1) Disconnect VCR from AC.
(2) Remove the Top cover, Front panel assy and cassette housing assy. (See Page 1-2, 1-3)
(3) Connect TP2 (GND) and TP1 (TEST) on the DISPLAY board assy with a jump wire.
(4) Connect VCR to AC.
(5) Press the POWER button.
(6) Select the desired operation modes with the operation buttons or remote controller.

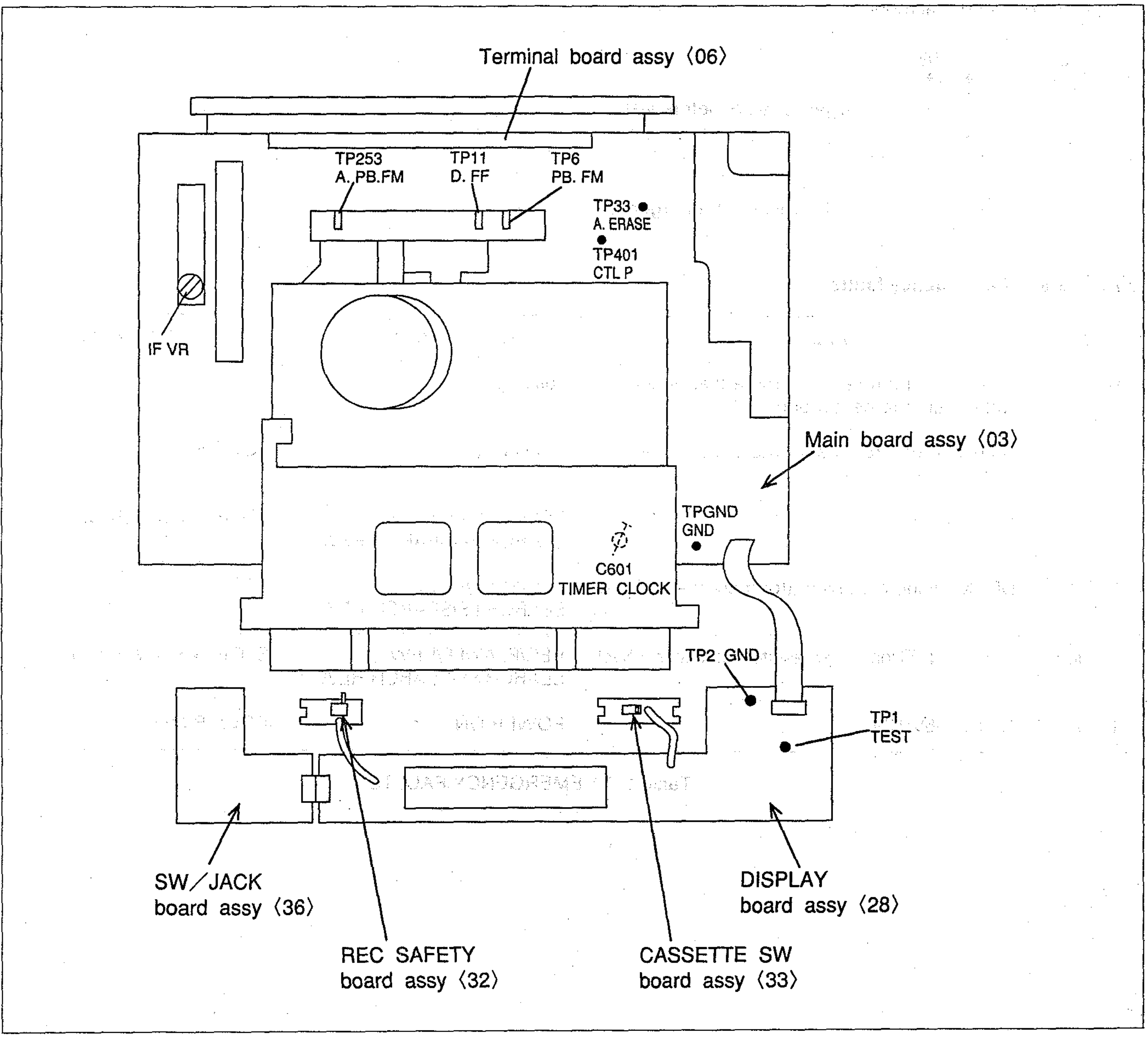

Terminal board assy 〈06〉
TP253
A. PB.FM
TP11
D. FF
TP6
PB. FM
TP33
A. ERASE
TP401
CTL P
IF VR
Main board assy 〈03〉
TPGND
GND
C601
TIMER CLOCK
TP2 GND
TP1
TEST
SW/JACK
board assy 〈36〉
DISPLAY
board assy 〈28〉
REC SAFETY
board assy 〈32〉
CASSETTE SW
board assy 〈33〉

Fig. 1-6-1

1.7 EMERGENCY DISPLAY FUNCTION

This product has the function to store the last two previous emergency faults which can be displayed in the FDP when servicing.

1.7.1 How to display record of an emergency faults

(1) Press "N" button of the presetting unit more than 2 seconds. and the two previous emergency faults are shown in the FDP.

(2) Press "N" button of the presetting unit again to return to the normal mode.

[Example] E : 01 : 03

Emergency faults before last (03)

Emergency faults of the last time (01)

[Example] E : — — : — — ← No record of emergency

1.7.2 Detail of emergency faults

FDP	Symptom	Detect mode	Resulting mode
E : 01	Loading motor rotates for more than 8 Sec without shift to next mode.	Loading	POWER OFF
E : 02	Loading motor rotates for more than 8 Sec without shift to next mode.	Unloading	POWER OFF
E : 03	TU REEL FG input is absent(for more than 4 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 04	DRUM FF input is absent(for more than 3 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP
E : 06	CAPSTAN FG input is absent(for more than 1 Sec)	REC/PLAY/FF/REW SEARCH FF/SEARCH REW	STOP → POWER OFF
E : 07	No SWD5V/12V	POWER ON	POWER OFF

Table 1-7-1 EMERGENCY FAULTS

1.7.3 How to clear emergency record

Press the COUNTER RESET button on the remote controller in the emergency record display mode,and the record of the emergency fault(s) is cleared.

SECTION 2
MECHANISM ADJUSTMENT

2.1 PREPARATION

2.1.1 Precautions

(1) Disconnect VCR from AC power before soldering.
(2) Avoid imparting stress to wires when disengaging connectors.
(3) Determine and correct the cause of difficulty before proceeding to adjustments.Do not disturb settings unnecessarity.
(4) Use care not to damage tabs,claws,etc during repairs.
(5) Install the cassette housing assy only when the mechanism is in the MECHANISM ASSEMBLING MODE position.
(6) When installing the Front panel assy,be sure to engage the housing door with the door opener of the cassette housing assy.
If this is omitted,the cassette door will not open at Eject and the cassette can not be removed. (See SECTION 1 DISASSEMBLY.)

2.1.2 Check without cassette housing assy.

Mechanism operations can be observed easily by removing the cassette housing assy. Use the MECHANISM SERVICE MODE (See SECTION 1 DIASSEMBLY)

2.1.3 Manual removal of loaded tape

When the deck enters the emergency mode with cassette tape loaded and it can not be ejected by pressing the EJECT button,take out of the cassette tape according to the following procedure.

(1) Disconnect the power cord from AC outlet then take out the Top cover and Front panel assy.
(2) Turn the mode motor on the Main deck assy by hand in the unloading direction to where the pole base assy (supply and take-up) is positioned below the cassette tape.At that time, pay careful attention to the tape not to get soiled with grease.
(3) Take out 4 screws of the cassette housing assy.(See SECTION 1 DISASSEMBLY)
(4) Remove the cassette housing with slackened tape and guard panel of cassette.
(5) Wind up the tape by turning the reel hub(either supply or take-up side for convenience) from the bottom of the cassette,and remove the cassette tape.

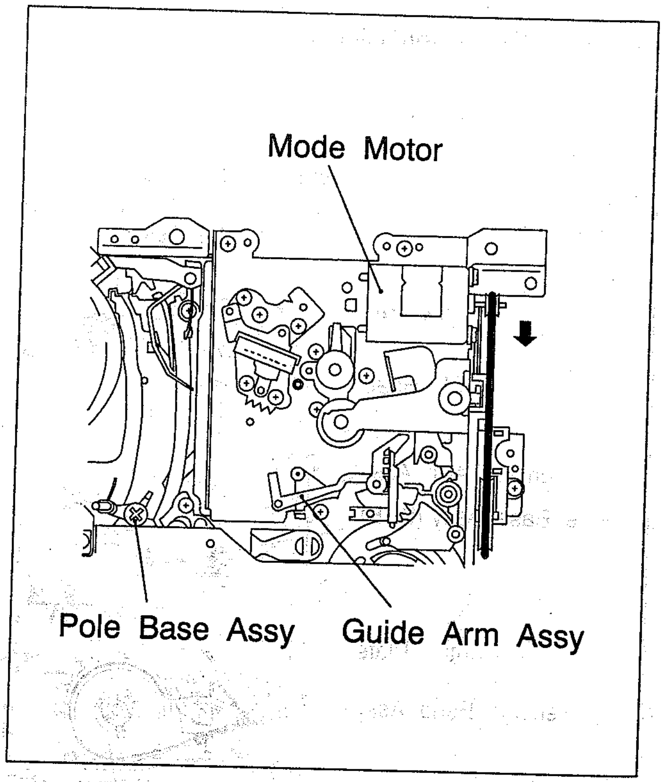


Fig. 2-1-1

2.1.4 Test Equipment

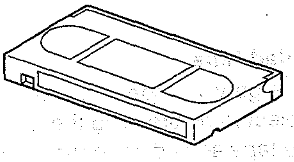
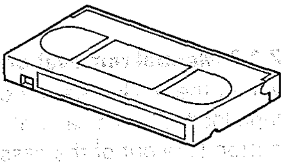
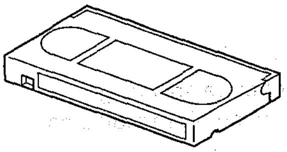
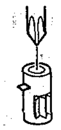
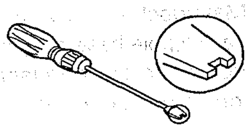
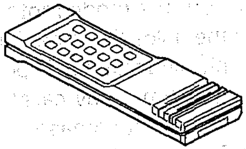
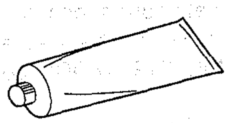
Alignment tape (SP) MHPE	Alignment tape (LP) MHPE-L	Back tension cassette gauge PUJ48076-2	A/C head positioning tool PTU94010
			
Roller driver PTU94002	Presetting unit PTU94008	Grease KYODO-SH-P	
			

Table 2-1 Test equipment

2.2 MAIN MECHANISM PARTS

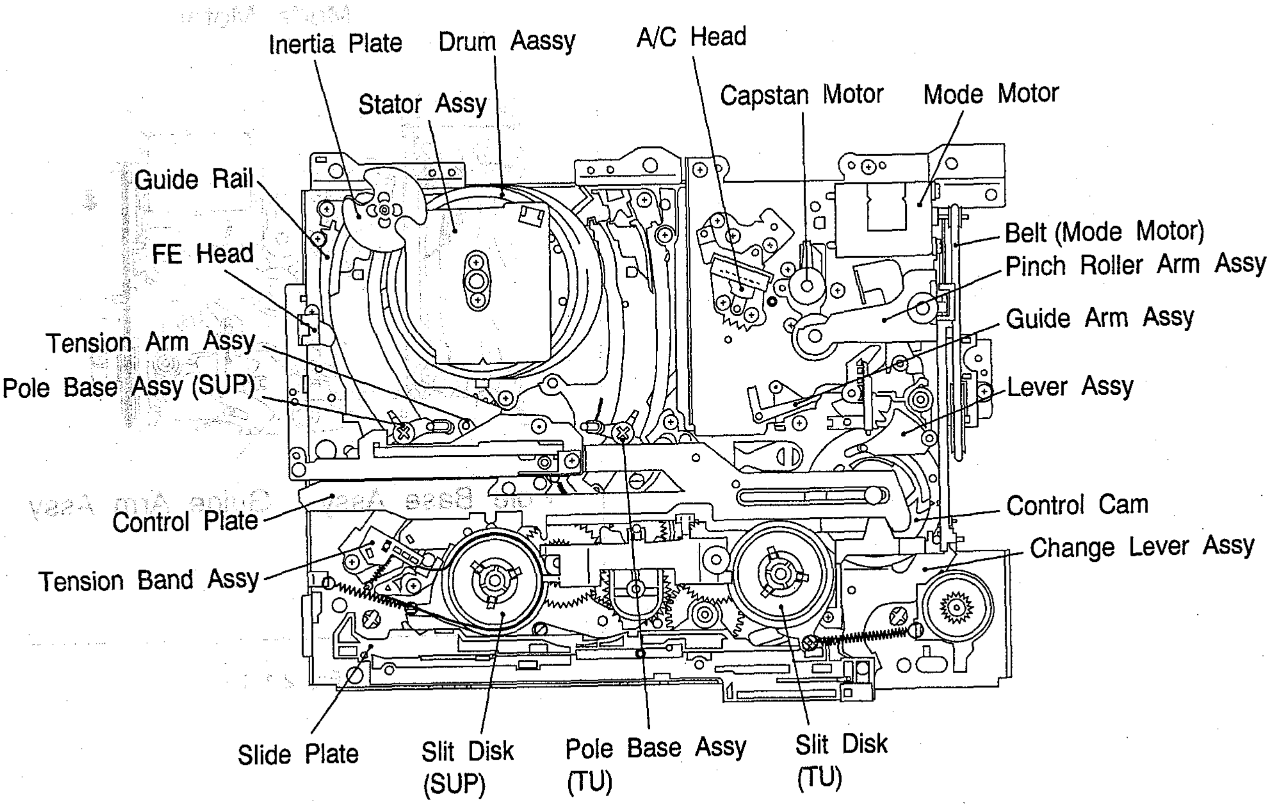

Inertia Plate
Drum Aassy
A/C Head
Stator Assy
Capstan Motor
Mode Motor
Guide Rail
FE Head
Tension Arm Assy
Pole Base Assy (SUP)
Belt (Mode Motor)
Pinch Roller Arm Assy
Guide Arm Assy
Lever Assy
Control Plate
Tension Band Assy
Control Cam
Change Lever Assy
Slide Plate
Slit Disk (SUP)
Pole Base Assy (TU)
Slit Disk (TU)

Fig. 2-2-1 Top view of main deck

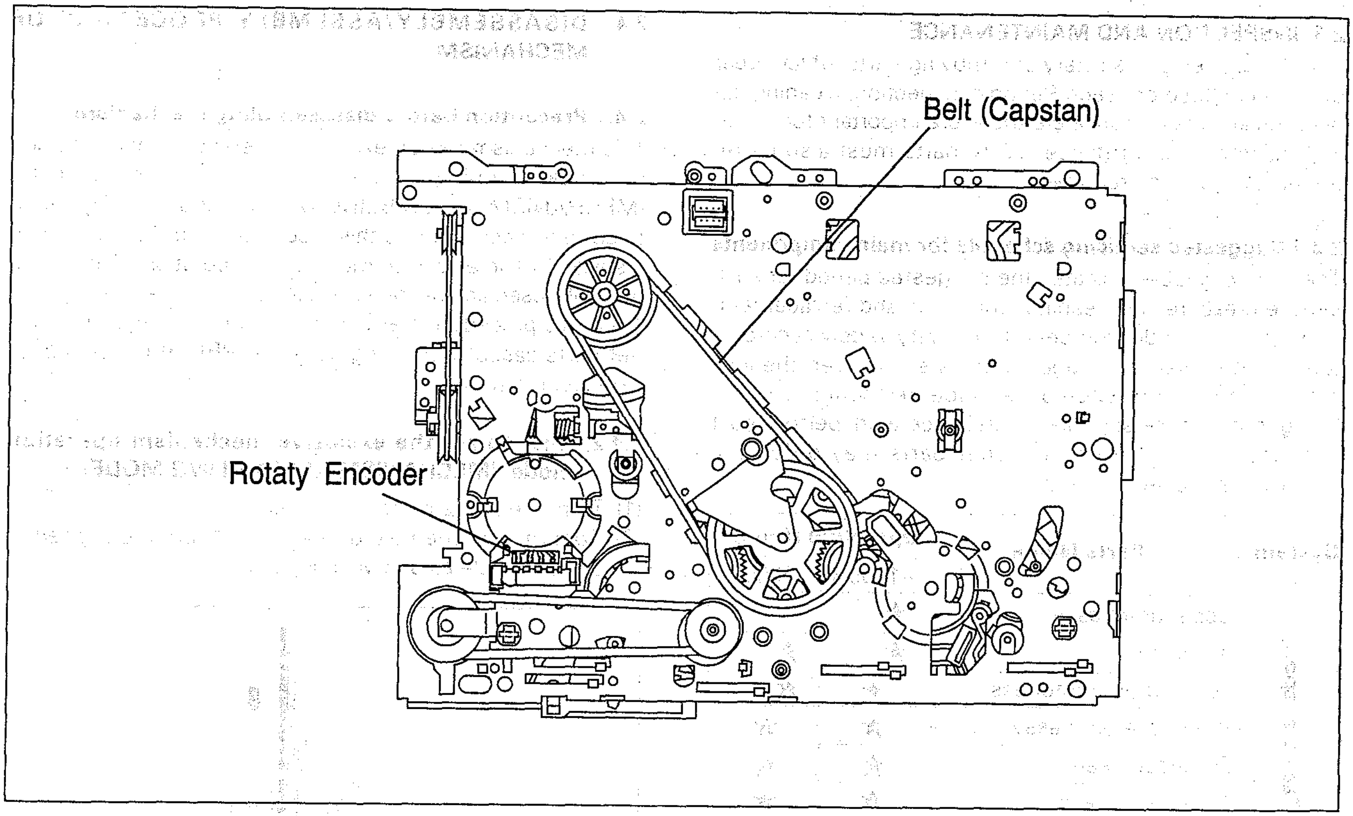


Fig. 2-2-2 Bottom view of main deck

2.2.1 Cleaning

Periodic cleaning of the tape transport system is desirable,but ordinarity not feasible in practice.Therefore,perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads,tape guides and brush can detract from playback picture quality and in extreme cases,even damage the tape.For cleaning,use a finemesh cotton cloth(about the texture of a while dress-shirt) moistened in alcohol. It is recomended to also clean thetape tension posts and capstan.

- To clean the video heads,press the moistened cloth gently against the upper drum with fingertip and turn the drum gy hand.
- Do not use a vertical stroke,as this may damage the heads.

2.2.2 Lubrication

Oil and grease do not normally require periodic replenshing. Apply only when replacing lubricated parts(also clean and replace lubrication of mating parts if soiled). For parts and points to apply oil and grease, refer to the exploded views of the mechanism assy. Before oiling,clean with alcohol.Apply one or two drops of oil. Avoid excess oil.

1. Table 2-2-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

Category	Part No.
Oil	COSMO-HV56
Grease	KYODO-SH-P

Table 2-2-1

2. Grease is not required for a replacement cassette housing assy,as this has been applied at the factory.

NOTE : *Stir grease that has been stored for an extended period.*

2.3 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage.Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced as and when required.

2.3.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning,lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions.However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary. Also note that rubber parts may deform in time,even if the set is not used.

System	Parts Name	Operation Hours	
		~1000H	~2000H
Tape transport	Upper drum assy	★○	○
	A/C head	★○	★○
	Lower drum motor assy	★	★○
	Pinch roller arm assy	★	★
	Full erase head	★	★
	Tension arm assy	★	★
	Guide arm assy	★	★
Drive	Capstan motor		○
	Belt (Capstan)	○	○
	Belt (Mode motor)		○
	Mode motor		○
	Slit disk (supply, take-up)		○
	Clutch unit (supply, take-up)		○
	Worm gear assy		○
	Control plate		○
	Slide plate		○
Other	Brush assy	★○	★○
	Tension band assy	○	○
	Rotary encoder		○

★ : Cleaning
○ : Inspection or Replacement if necessary

Table 2-3-1

2.4 DISASSEMBLY/ASSEMBLY PROCEDURE OF MECHANISM

2.4.1 Precaution before disassembling mechanism

This mechanism has an exclusive operation mode provided for disassembling and installation of the mechanism (MECHANISM ASSEMBLING MODE), and it is suggested to set the mechanism to this mode before disassembly and installation.The exclusive mechanism operation mode is not generally used and becomes available by manual setting only. Then this procedure starts with the condition that the cabinet parts,cassette housing assy and PRE/REC board assy have been removed.

2.4.2 How to set the exclusive mechanism operation mode (MECHANISM ASSEMBLING MODE)

(1) Turn the mode motor belt by hand.
(2) Confirm that the hole of the control cam are aligned to the deck hole as shown in Fig.2-4-1.

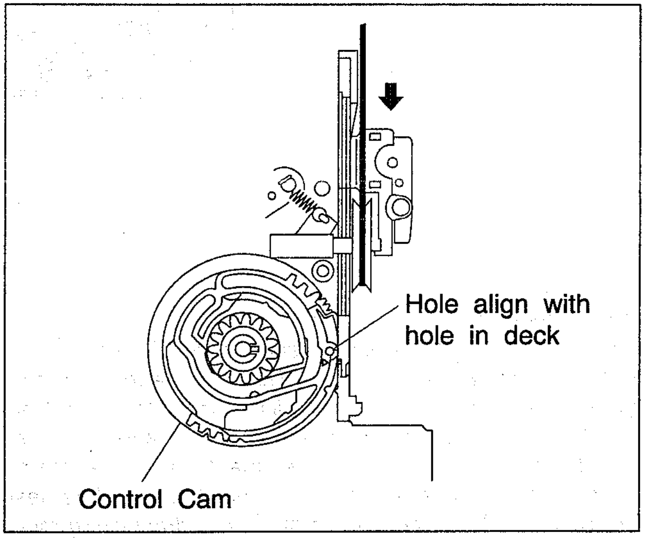


Fig. 2-4-1

2.5 MAIN PARTS REPLACEMENT OF MECHANISM

2.5.1 Pinch Rollar Arm ASSY

(1) Remove the slit washer.
(2) Tilt up the pinch rollar assy in direction of arrow.

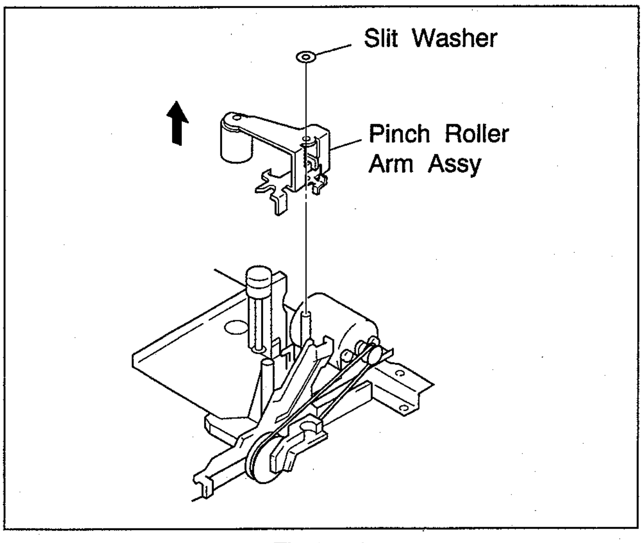


Fig.2-5-1

2.5.2 A/C Head

1. Removal

(1) Take out 2 screws (A).

(2) Remove the A/C head with head base.

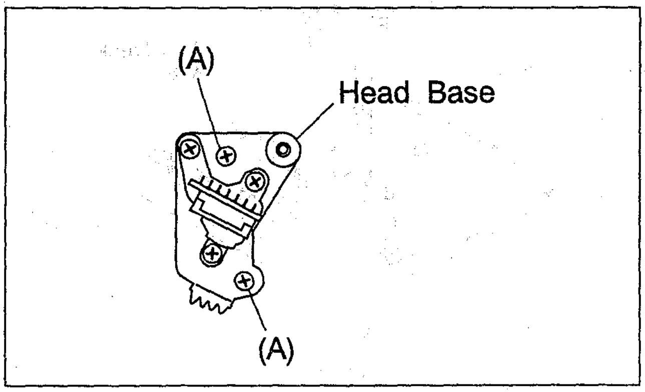

(A)
Head Base
(A)

Fig.2-5-2

(3) When replacing the A/C head only,remove 3 screws (B), use care not to misplace the 3 springs.

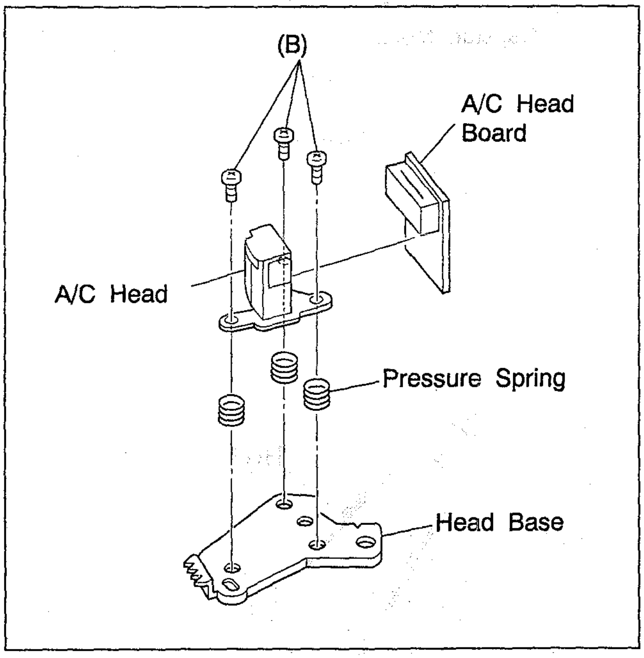

(B)
A/C Head Board
A/C Head
Pressure Spring
Head Base

Fig.2-5-3

2. Installation

(1) Temporarily set A/C head height as indicated in Fig. 2-5-4.

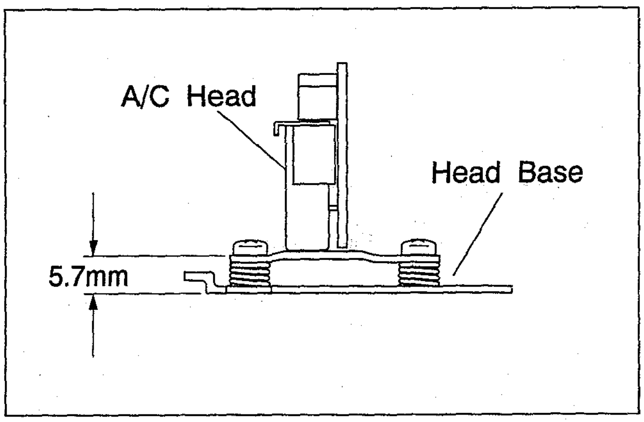

A/C Head
Head Base
5.7mm

Fig.2-5-4

NOTES:

- *It is very important to correctly adjust the control pulse and audio signal in addition to the mechanical tape path.*
- *Perform interchangeability adjustments after electrical adjustments.*

2.5.3 Pinch Plate

1. Removal

(1) Disengage 2 claws, then remove the pinch plate.

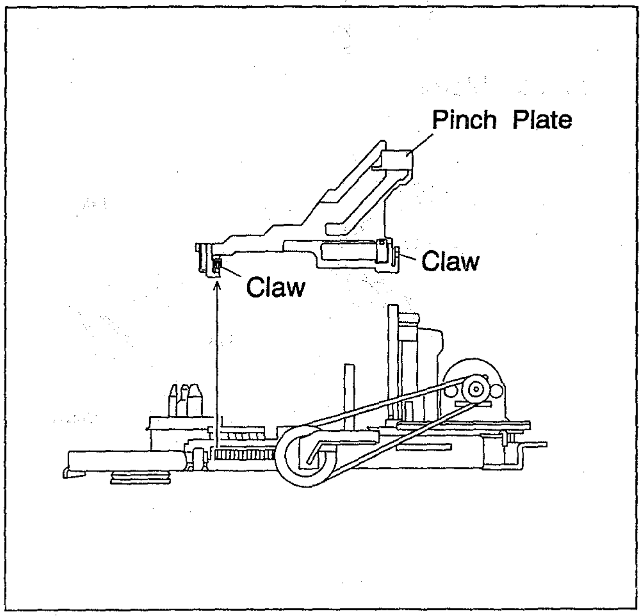

Pinch Plate
Claw
Claw

Fig.2-5-5

2. Installation

(1) When installing pinch plate,align rack of pinch plate and triangle mark of control cam as indicated in Fig.2-5-6.

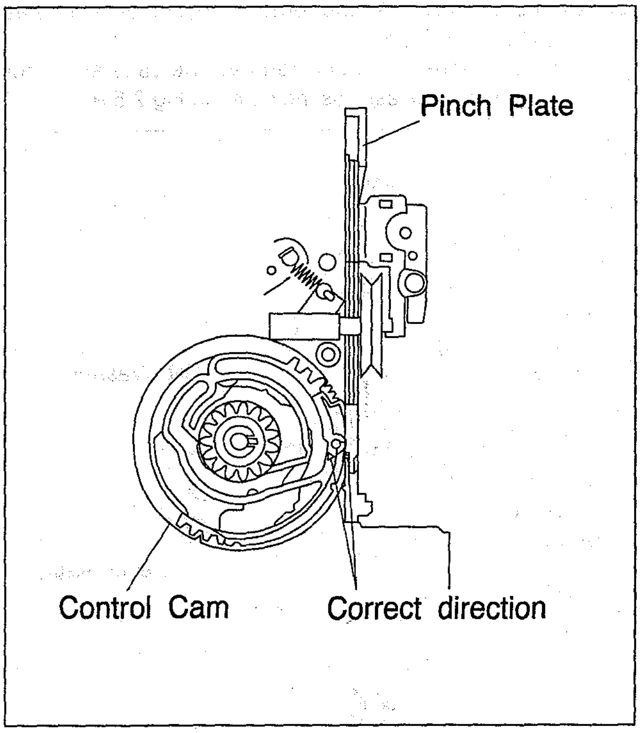

Pinch Plate
Control Cam
Correct direction

Fig. 2-5-6

2.5.4 Mode Motor

(1) Engage the belt between mode motor and worm gear.
(2) Take out 2 screws (A) then remove the mode motor.

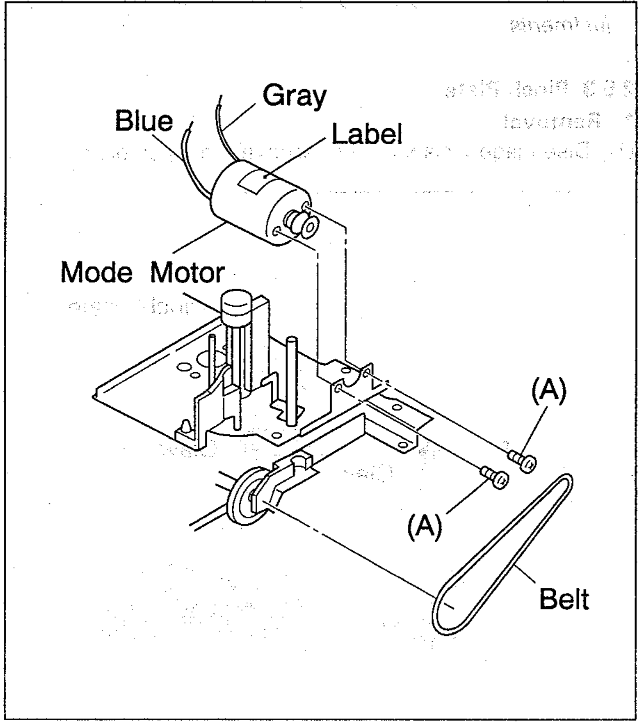

Gray
Blue
Label
Mode Motor
(A)
(A)
Belt

Fig.2-5-7

2.5.5 Lever Assy,Sub Deck Assy,Capstan Motor

(1) Take out 1 slit washer,then remove the lever assy.
(2) Engage the belt(capstan motor) from bottom of mechanism assy first as indicated in Fig.2-5-10.
(3) Take out 3 screws (A) and remove the sub deck assy as indicated in Fig.2-5-8.
(4) Take out 3 screws (B) and remove the capstan motor from the sub deck assy as indicated in Fig.2-5-9.

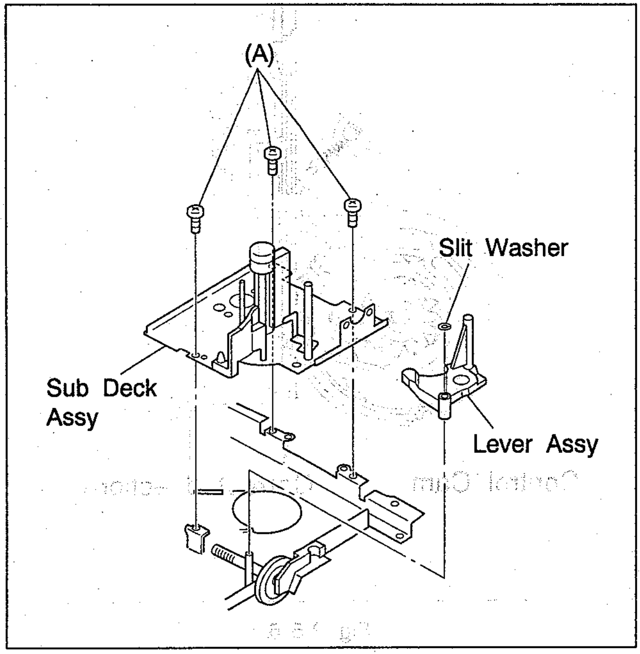

(A)
Slit Washer
Sub Deck Assy
Lever Assy

Fig.2-5-8

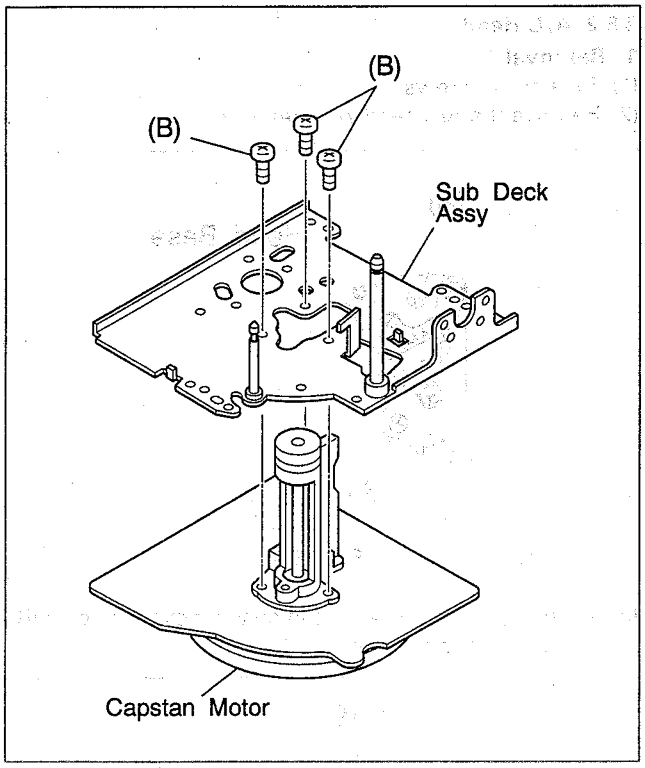

(B)
(B)
Sub Deck Assy
Capstan Motor

Fig.2-5-9

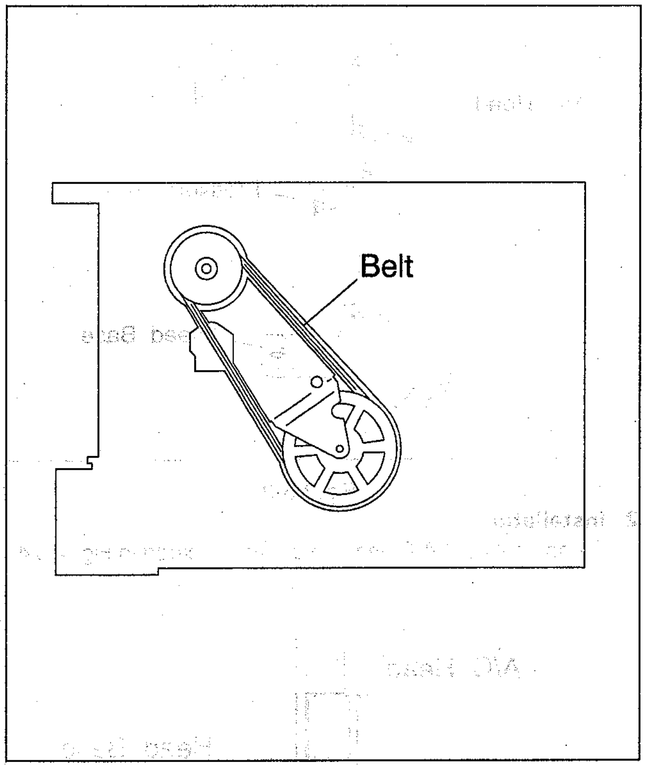


Fig.2-5-10

2.5.6 Control Bracket-1,Earth Pllate

(1) Take out 1 screw (A) and 1 screw (B).
(2) Remove the control bracket-1 and earth pllate.

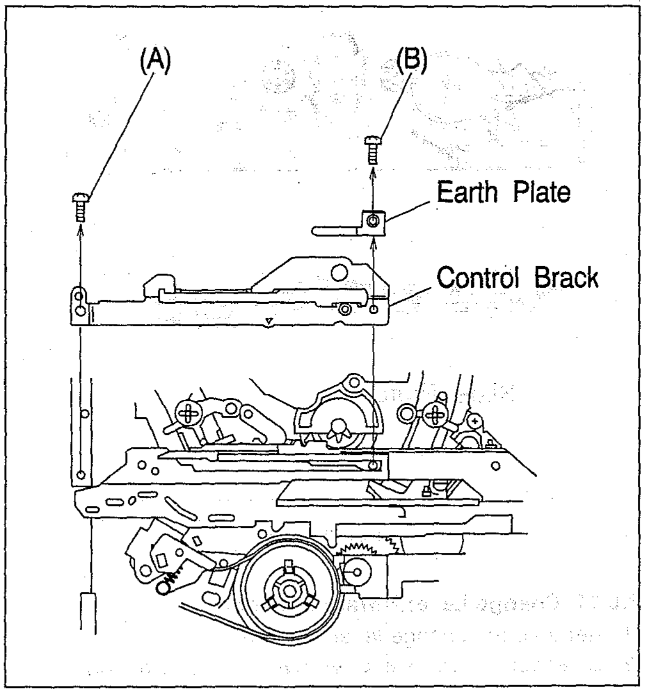

(A)
(B)
Earth Plate
Control Brack

Fig.2-5-11

2.5.7 Reel Bracket,Slit disk (take-up)

(1) Take out 2 slit washers.
(2) Remove the reel bracket and slit disk(take-up).

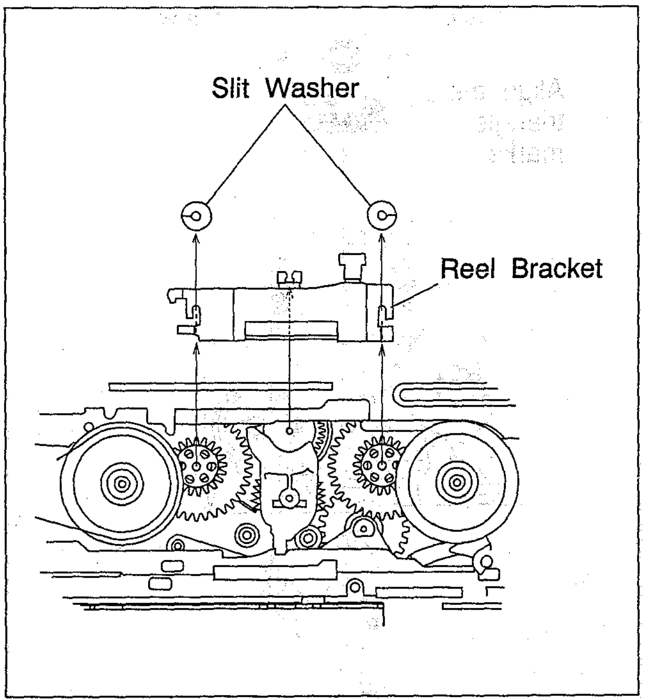

Slit Washer
Reel Bracket

Fig.2-5-12

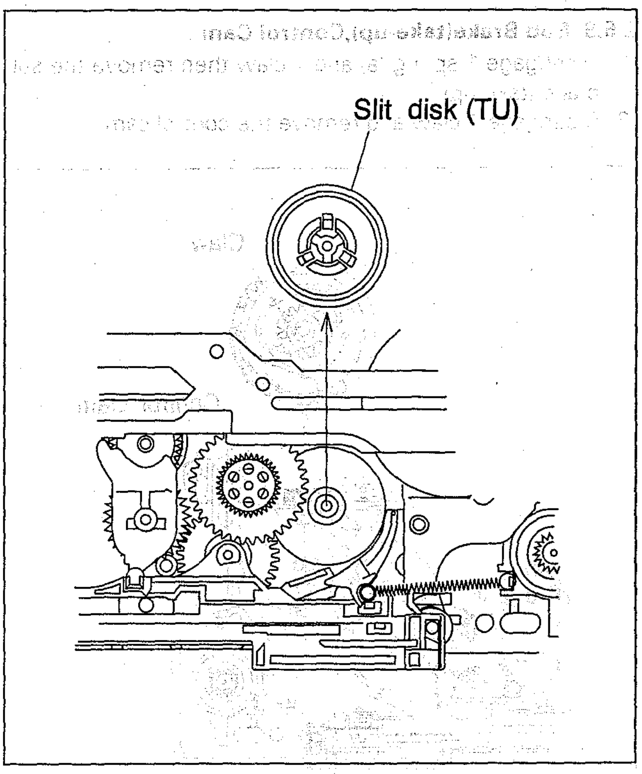

Slit disk (TU)

Fig.2-5-13

2.5.8 Control Bracket-2,Control Plate

(1) Take out 1 screw (A) and remove the control bracket-2.
(2) Take out 1 slit washer.
(3) Disengage 2 claws and remove the control plate.

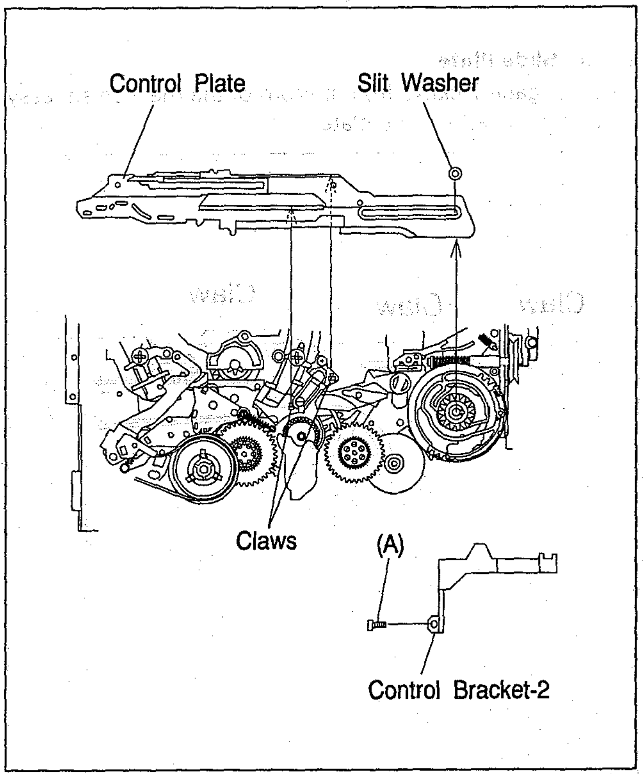

Control Plate
Slit Washer
Claws
(A)
Control Bracket-2

Fig.2-5-14

2.5.9 Sub Brake(take-up),Control Cam

(1) Disengage 1 spring (a) and 1 claw then remove the sub brake (take-up).

(2) Disengage 1 claw and remove the control cam.

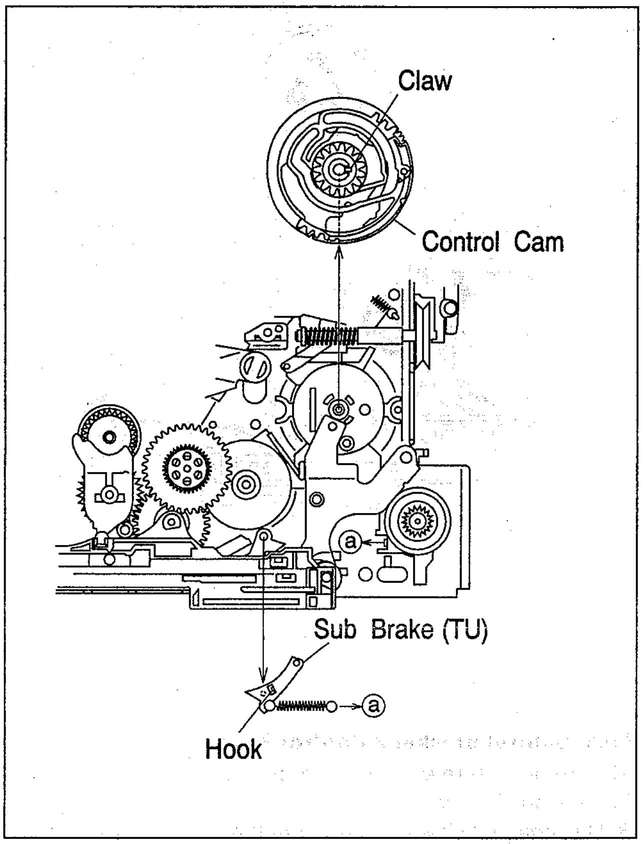

Claw
Control Cam
a
Sub Brake (TU)
a
Hook

Fig.2-5-15

2.5.10 Slide Plate

(1) Disengage 7 claws from bottom of the mechanism assy and remove the slide plate.

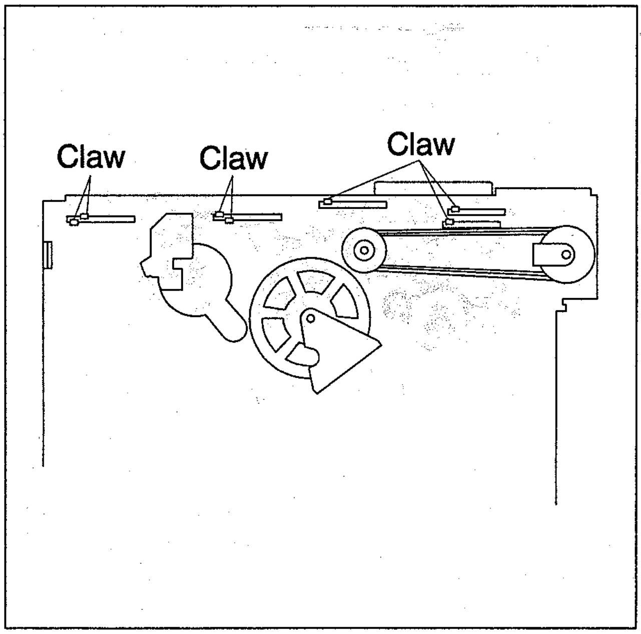

Claw
Claw
Claw

Fig. 2-5-16

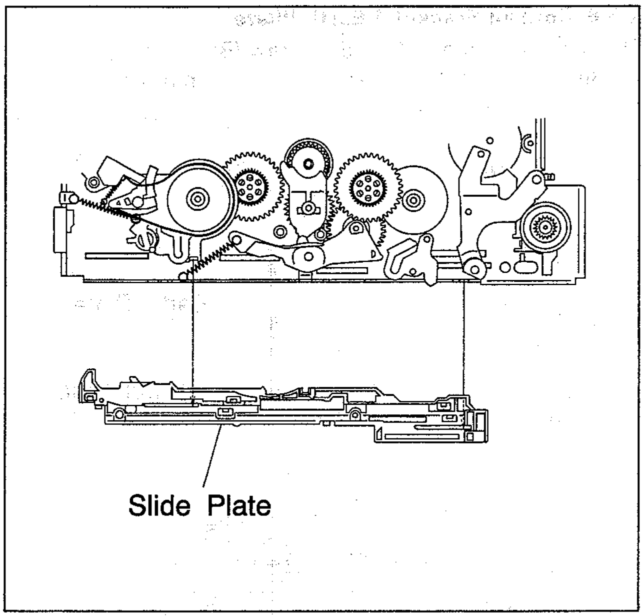

Slide Plate

Fig. 2-5-17

2.5.11 Change Lever,Rotary Encoder

(1) Remove the change lever.

(2) Disengage 2 claws and remove the rotary encoder.

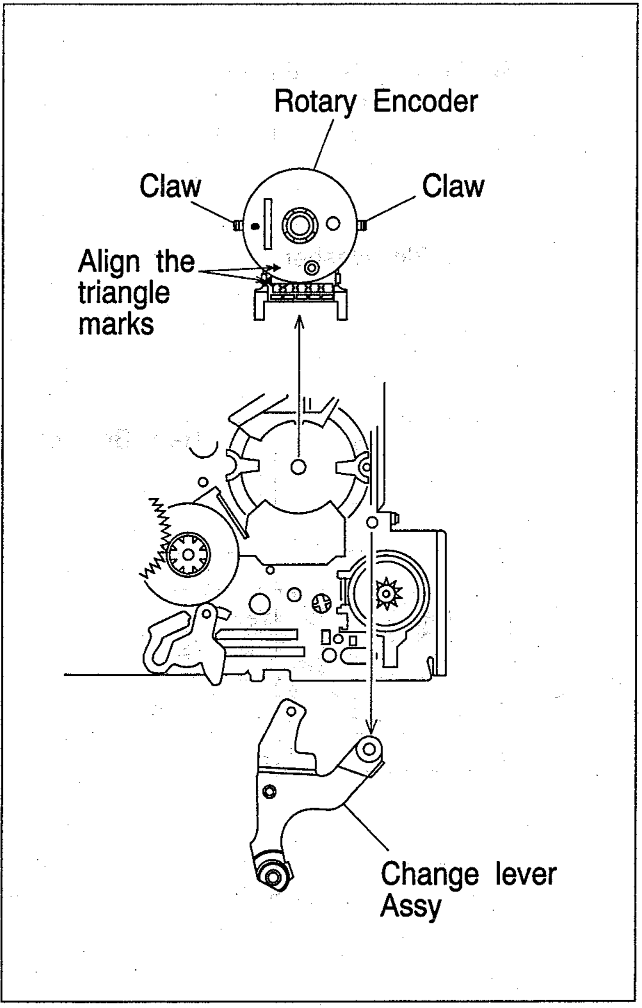

Rotary Encoder
Claw
Claw
Align the triangle marks
Change lever Assy

Fig. 2-5-18

2.5.12 Sub Brake (supply),Tension Band Assy,Tension Arm Assy,Take-up Lever Assy,Slit Disk(supply)

(1) Disengage 1 spring (a).
(2) Disengage 1 claw and remove the sub brake (supply).
(3) Take out 1 screw (A),spring (c) and slit washer.
(4) Remove the tension arm assy with tension band assy.
(5) Disengage 1 spring (b) and remove the take-up lever assy.
(6) Remove the slit disk(supply).

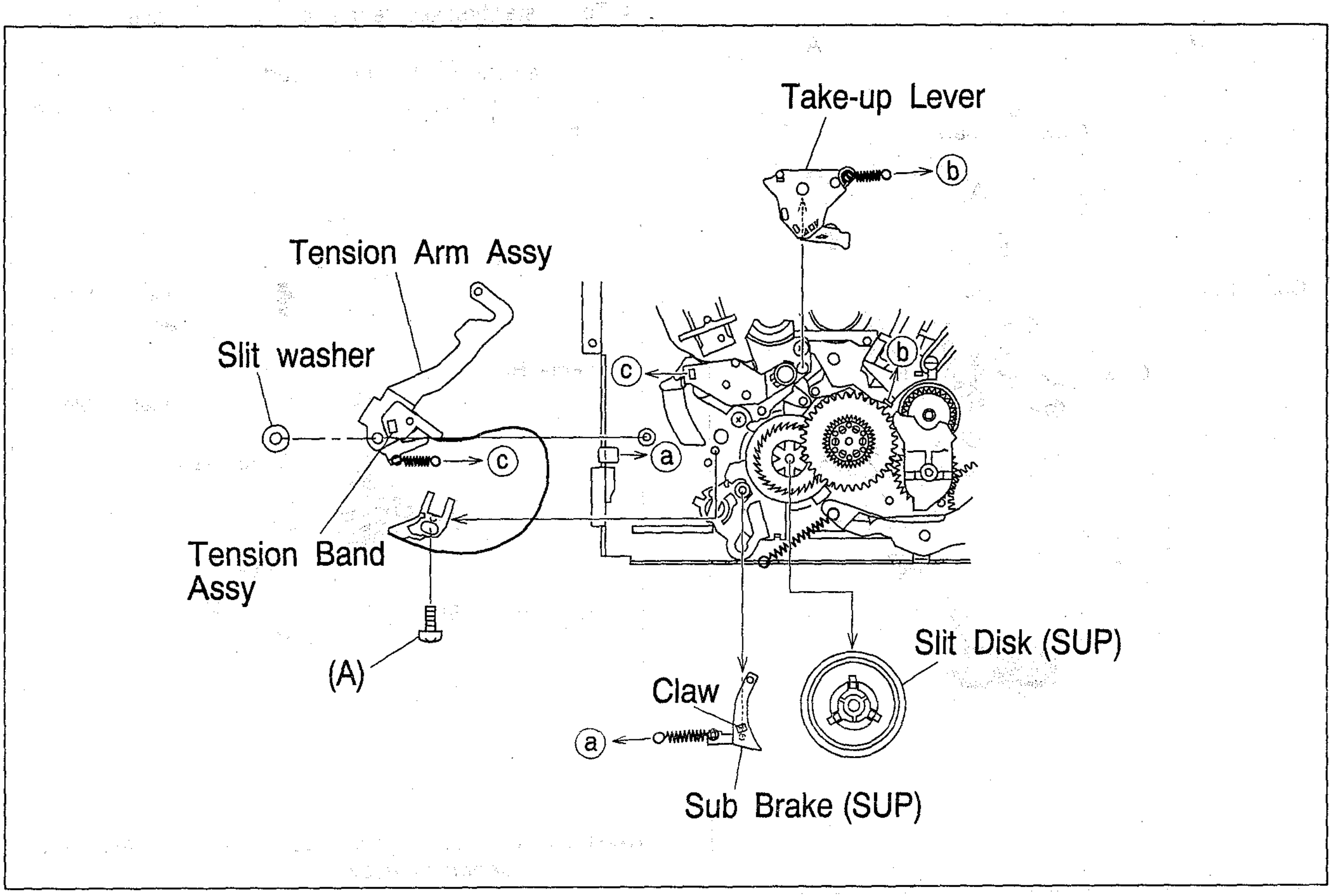

Take-up Lever
ⓑ
Tension Arm Assy
Slit washer
ⓒ
ⓐ
ⓑ
ⓒ
Tension Band Assy
(A)
Slit Disk (SUP)
Claw
ⓐ
Sub Brake (SUP)

Fig. 2-5-19

2.5.13 Take-up Head,Tension Arm Lever

(1) Remove the take-up head and tension arm lever.

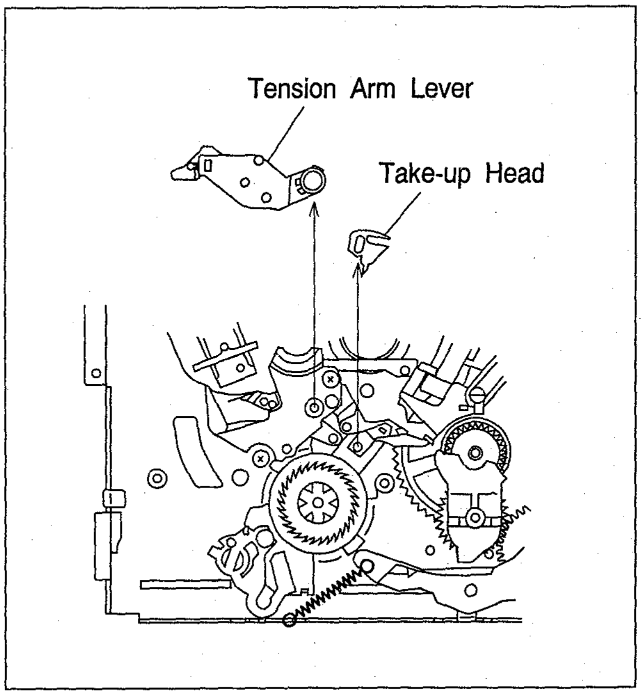

Tension Arm Lever
Take-up Head

Fig.2-5-20

2.5.14 Guide Rail

(1) Take out 5 screws (A) and 1 screw (B).

(2) Disengage 4 claws and remove the guide rail.

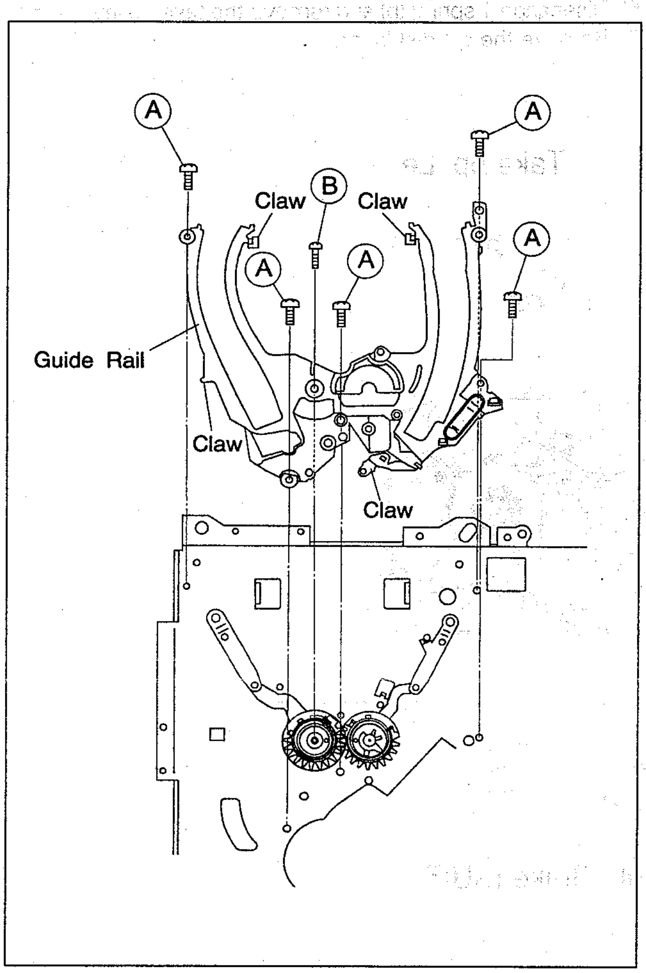

A
A
B
Claw
Claw
A
A
A
Guide Rail
Claw
Claw

Fig. 2-5-21

2.5.15 Stator Assy

(1) Take out 2 screws (A).

(2) Raise the stator assy in the direction indicated by the arrow to remove it (also remove the inertia roller).

(3) Remove the flat cable.

(4) To reinstall, first secure the flat cable, then insert 2 screws (A).

(5) After reinstalling, be sure to perform PB switching point adjustment(See SECTION 3 ELECTRICAL ADJUSTMENT).

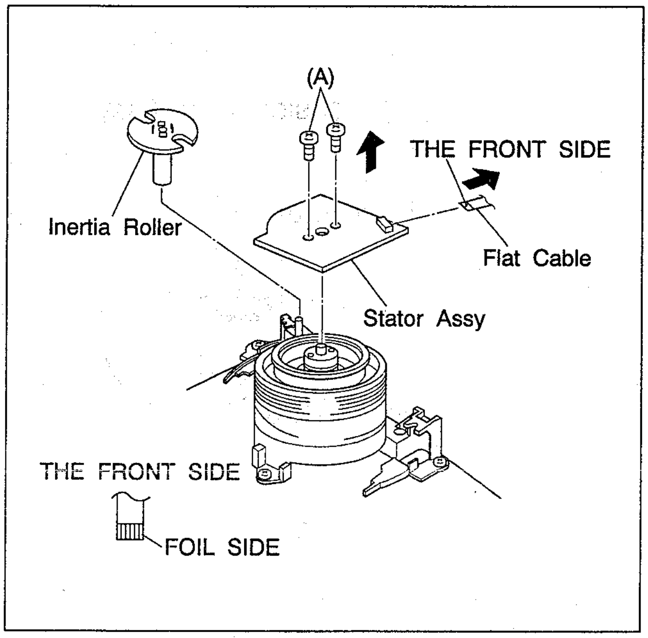

(A)
THE FRONT SIDE
Inertia Roller
Flat Cable
Stator Assy
THE FRONT SIDE
FOIL SIDE

Fig. 2-5-22

NOTE : *When refitting the connector, check that the flat wire is inserted correctly.*

2.5.16 Rotor Assy

(1) Remove the stator assy.

(2) Take out 2 screws (B) and remove the rotor assy.

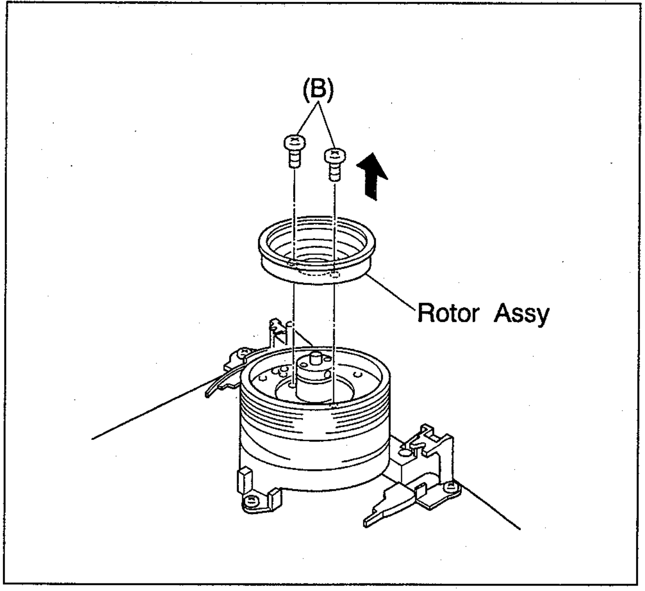

(B)
Rotor Assy

Fig.2-5-23

(3) Align the upper dum assy and rotor assy phase as indicated in Fig.2-5-22.

(4) Overlap holes (a) of the upper drum assy with holes (b) of the rotor assy (align holes in 3 locations) and secure with 2 screws (B) as indicated in Fig.2-5-21.

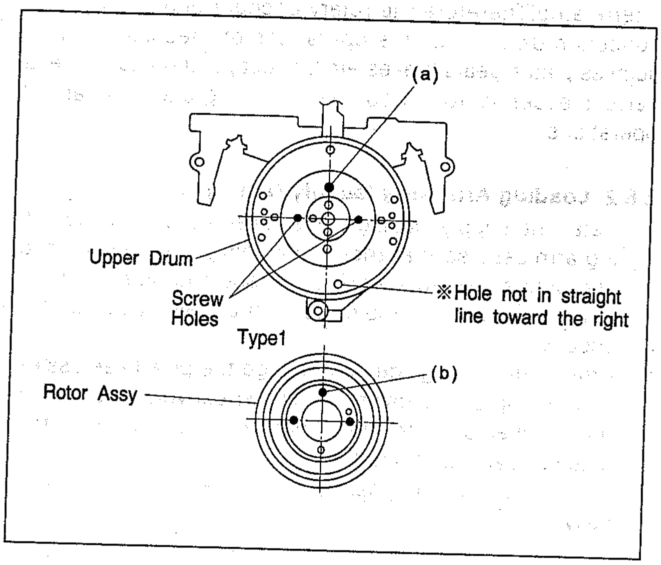

(a)
Upper Drum
Screw Holes
※Hole not in straight line toward the right
Type1
(b)
Rotor Assy

Fig. 2-5-24

2.5.17 Upper Drum Assy

1. Removal

(1) Remove the stator assy and rotor assy.

(2) Use a 1.5 mm hexagonal wrench to loosen the collar assy screw and remove the collar assy.

(3) Remove the upper drum assy and use tweezers to remove the Washer.

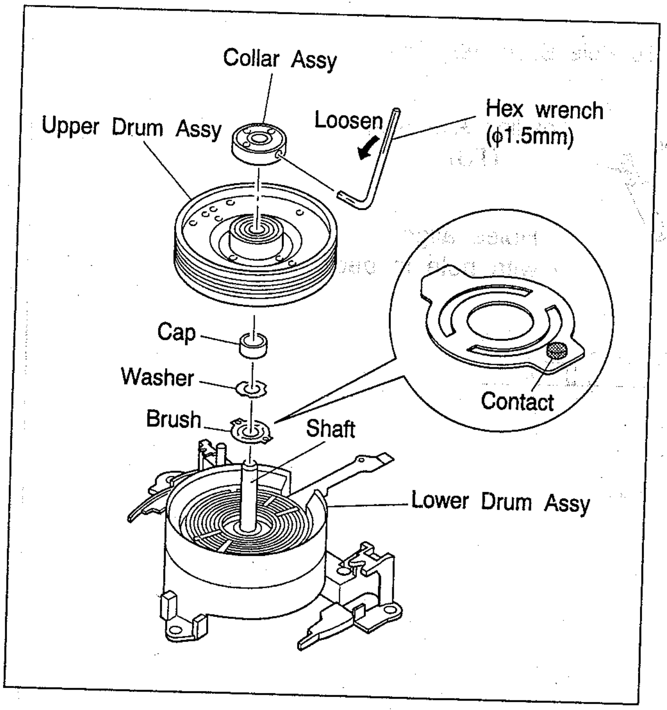

Collar Assy
Upper Drum Assy
Loosen
Hex wrench (φ1.5mm)
Cap
Washer
Brush
Shaft
Contact
Lower Drum Assy

Fig. 2-5-25

NOTE : *If the Brush is replaced, do not apply the grease to the contacts.*

2. Installation

(1) Use an air brush to clean the lower drum assy and the coil section of the new upper drum assy.

(2) Set a new washer on the drum shaft as indicated in Fig.2-5-25.

NOTE : *Be sure to use the new washer when replace the upper drum assy.*

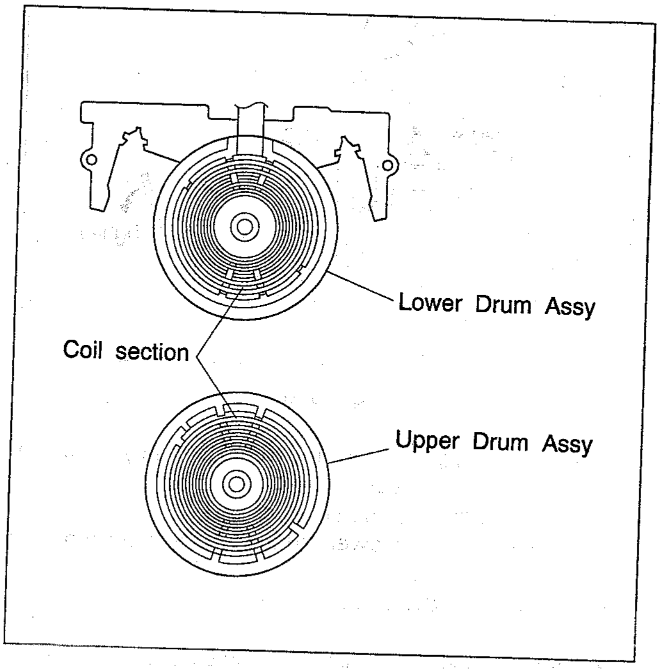

Lower Drum Assy
Coil section
Upper Drum Assy

Fig.2-5-26

(3) Note the top and bottom of the collar assy and determine the position as indicated in Fig.2-5-25.

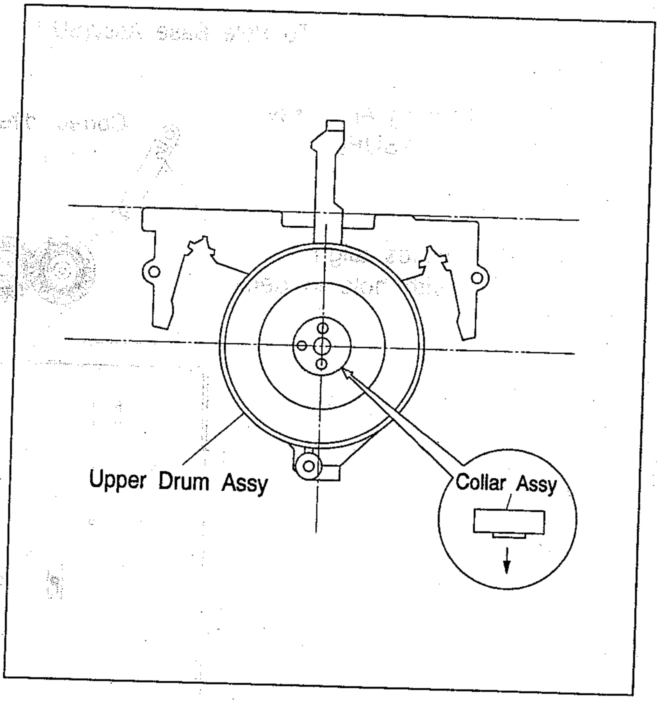

Upper Drum Assy
Collar Assy

Fig.2-5-27

(4) While pressing the collar assy evently from above with your fingertips,secure the hexagonal screw.

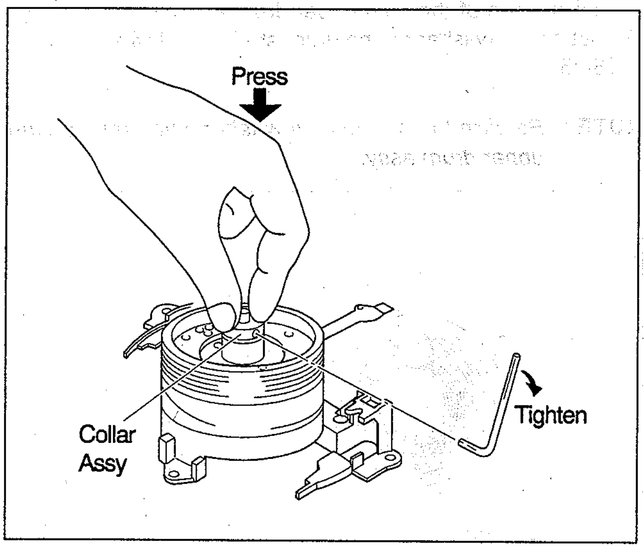

Press
Tighten
Collar Assy

Fig.2-5-28

(5) After installing,gently turn the upper drum by hand and confirm normal rotation.
(6) Install the rotar assy and stator assy.
(7) Clean the upper and lower drum assies and perform the following adjustments;
  - PB switching point adjustment
  - Slow tracking preset adjustment
  - Interchangeability adjustment (be sure to check LP mode)

2.6 CHECKUP AND ADJUSTMENT OF MECHANISM PHASE

2.6.1 Precaution

The rotary encoder and syscon circuit are closely interrelated.Therefore,the rotary encoder and control cam conection determines the operations of mechanical parts such as plates,gears,brakes,etc.Correct positioning of these parts is essential for smooth tape loading and mechanical operations.

2.6.2 Loadidg Arm Assy (supply,take-up)

(1) Install the supply loading arm assy and the take-up loading arm assy so that their positioning markings on the respective gear face each other and the holes of their arms correspond to the holes on the main deck assy respectively.
(2) After setting the guide rails,engage the pole base assies with the tip of the loading arms respectively. Then,enter the mechanism into the unloading mode to return the pole base assies to the front position.
(3) Reassemble the peripheral parts of the guide rail as originally.

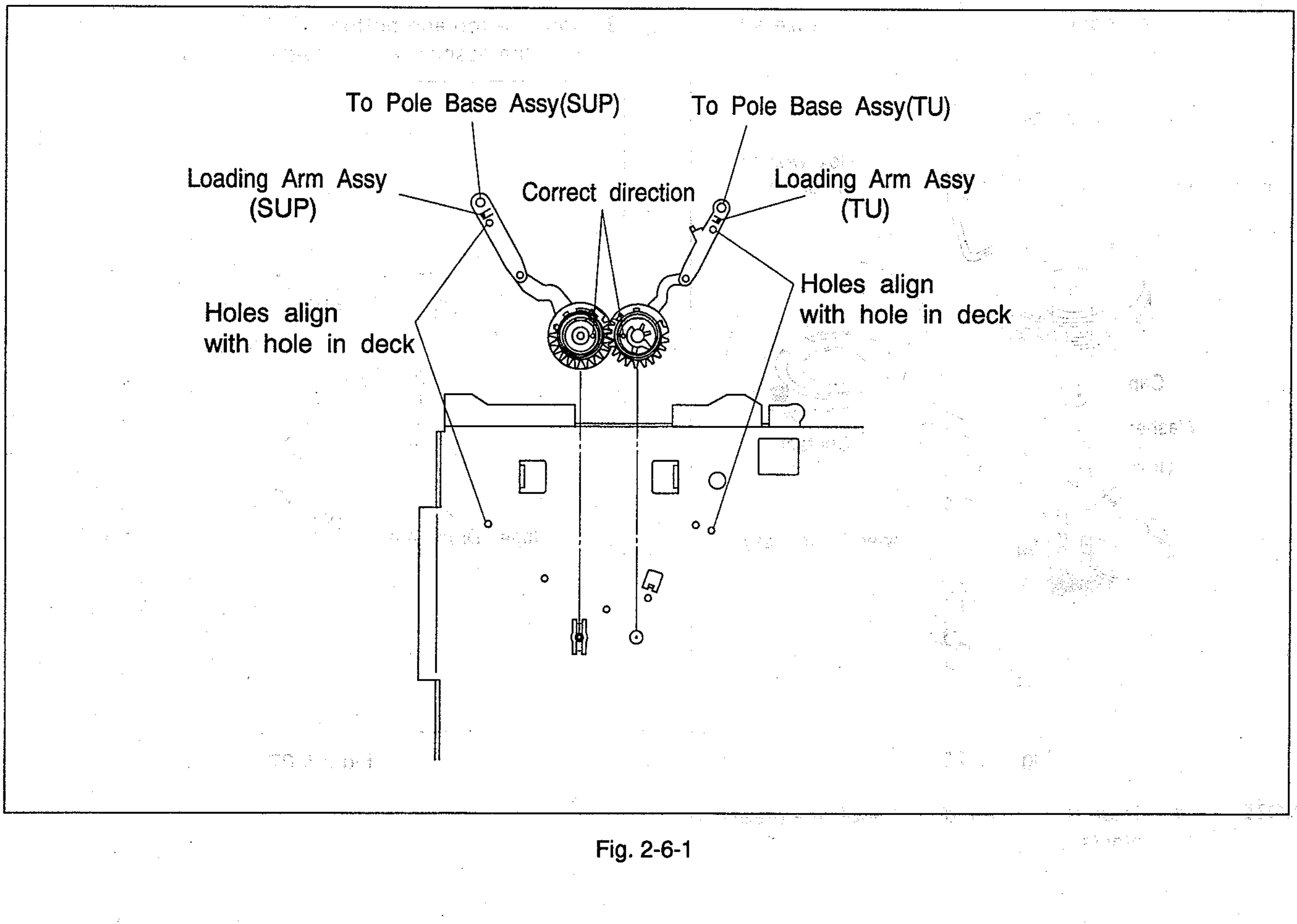

To Pole Base Assy(SUP)
To Pole Base Assy(TU)
Loading Arm Assy (SUP)
Correct direction
Loading Arm Assy (TU)
Holes align with hole in deck
Holes align with hole in deck

Fig. 2-6-1

2.6.3 Rotary Encoder,Change Lever,Control Cam

(1) When reinstalling the rotary encoder,adjust its position so as to fit the triangle marks each other and push it deep untill it is locked by the pawls.

(2) When reinstalling the change lever,set it so as to make its positioning hole correspond to the hole of the main deck assy.

(3) When re-engaging the control cam,lower the capstan brake assy while setting it so as to make its positioning hole correspond to the hole of the main deck assy.

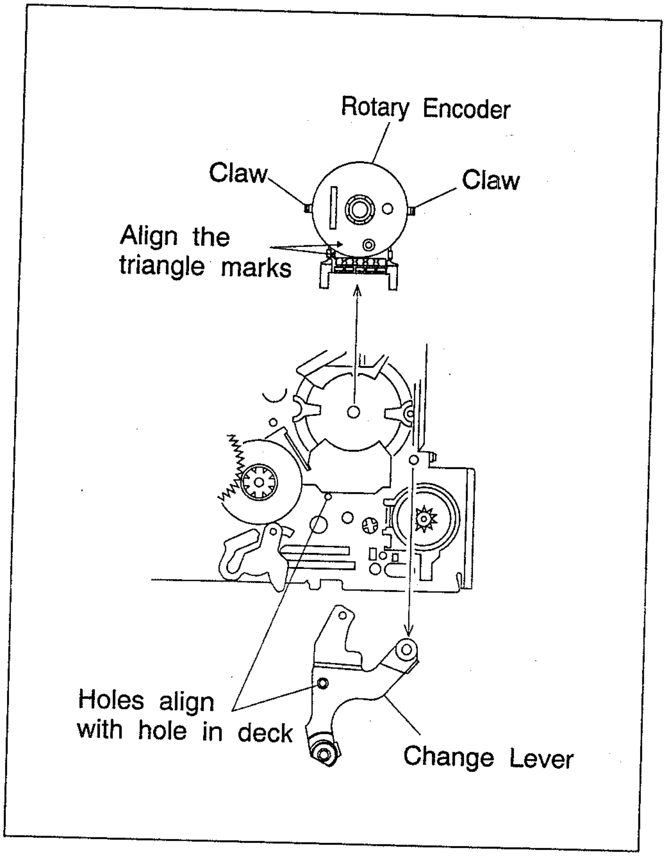

Rotary Encoder
Claw
Claw
Align the triangle marks
Holes align with hole in deck
Change Lever

Fig. 2-6-2

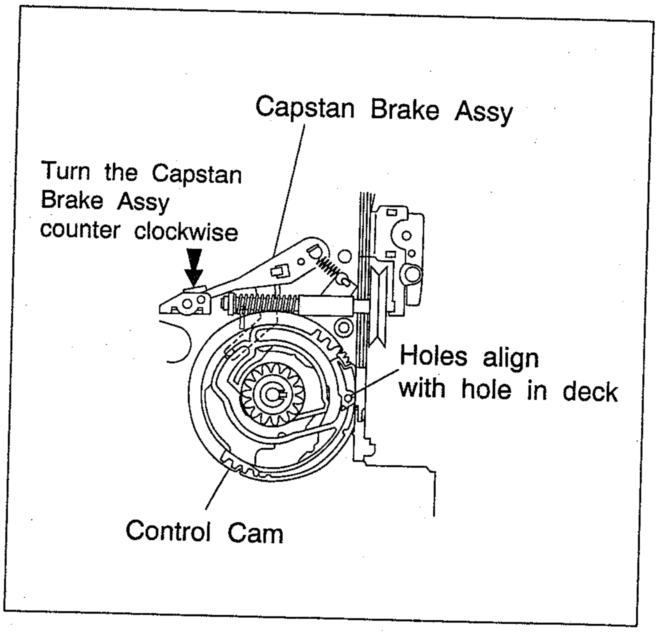

Capstan Brake Assy
Turn the Capstan Brake Assy counter clockwise
Holes align with hole in deck
Control Cam

Fig. 2-6-3

2.6.4 Slide Plate

(1) Lower both the main brake assies (supply and take-up) untill they touch the edge of the main deck assy while reinstalling the slide plate so as to make the respective positioning holes of the main brake assies correspond to the holes on the main deck assy.

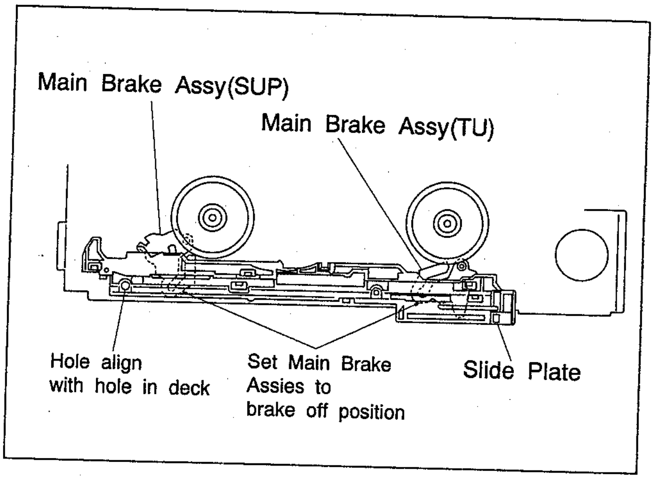

Main Brake Assy(SUP)
Main Brake Assy(TU)
Hole align with hole in deck
Set Main Brake Assies to brake off position
Slide Plate

Fig.2-6-4

2.6.5 Control Plate

(1) Reinstall the control plate so as to set the two positioning holes of it on the holes on the main deck assy respectively and to set the positioning hole of the take-up lever on the hole of the main deck at the same time. When adjusting the hole position of the take-up lever,use a pair of tweezers to hold and move it since it is pulled by a tension spring.

(2) After reinstalling the control plate,fix it with the slit washer,control bracket-1 and -2.

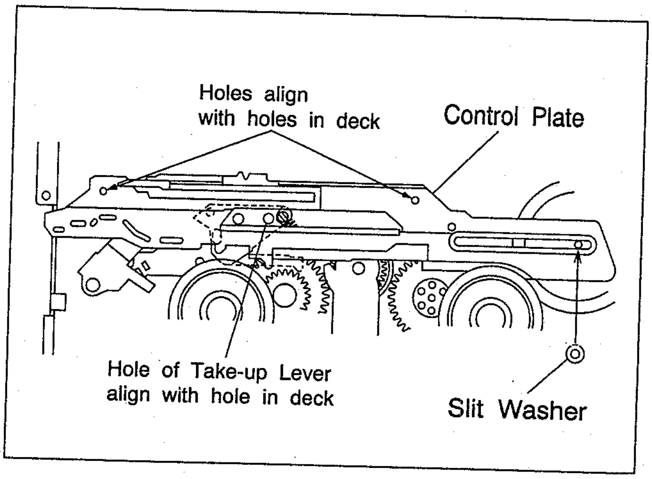

Holes align with holes in deck
Control Plate
Hole of Take-up Lever align with hole in deck
Slit Washer

Fig. 2-6-5

2.7 TAPE INTERCHANGEABILITY ADJUSTMENT

NOTE :
- *This adjustment is extremely important. However, it is normally not required during routine service. Perform only after replacing major components(A/C head,upper/lower drum assy,pole base assy,etc).*
- *Before using costly alignment tape,use a spare tape and confirm correct operation of the tape transport.*

2.7.1 Tape pattern

(1) Connect the oscilloscope to TP6(PB FM) on the PRE/REC board.Use TP11(D.FF) on the PRE/REC board as a trigger.

(2) Playback the SP stairstep portion of the alignment tape [MHPE].Confirm that the FM waveform appears as indicated in Fig.2-7-1.

(3) Set the manual tracking position by pressing the ***///*** button on the remote controller or TV PROG "-" and "+" buttons simultaneously.

(4) Operate the tracking adjustment (press the TV PROG buttons during playback) and set for maximum playback FM waveform.

(5) By operating the TV PROG button,vary the FM waveform from maximum to minimum and vice versa to confirm that the waveform varies nearly in a flat shape as shown in Fig.2-7-1.

(6) When the FM waveform does not remain flat during this process,first slightly loosen the set screw located at the bottom of the guide rollers.Using the guide roller adjustment tool (Roller driver) ,adjust the supply and take-up guide rollers (refer to Fig.2-7-2) to obtain the correct waveform as indicated in Fig.2-7-3.

(7) By pressing the TV PROG buttons several times,vary the FM waveform output from maximum to minimum (and vice versa) gradually,and confirm that the variation proceeds in flat shape, as shown in Fig.2-7-3.

(8) Next playback the LP stairstep portion of the alignment tape [MHPE-L] and adjust the tracking control from maximum to minimum the FM waveform,confirm that FM waveform variation is always flat.

(9) Record the signal and play it back in both of the SP and LP mode,confirm that the FM waveform is flat in both mode.

(10) After adjustments,tighten the set screw of the guide rollers.

(11) Confirm that the tape wrinking does not occur at the roller upper or lower limits as indicated in Fig.2-7-4.

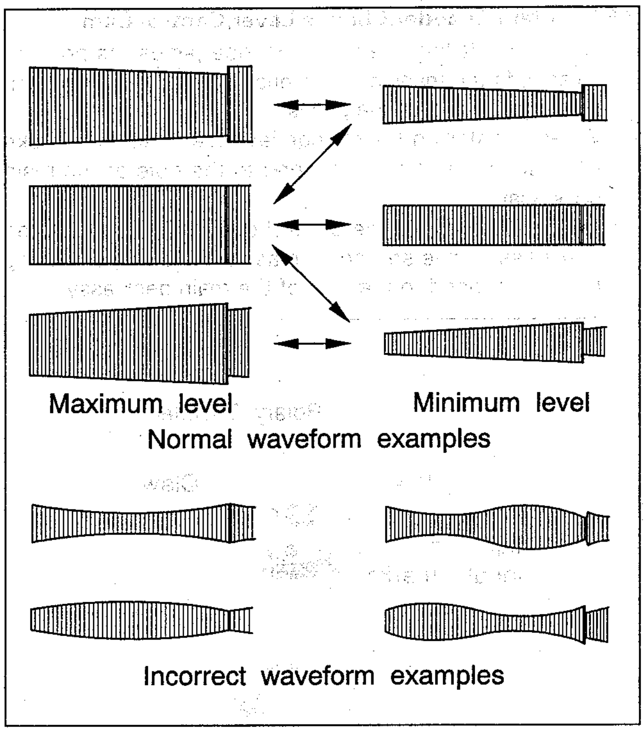


Fig. 2-7-1

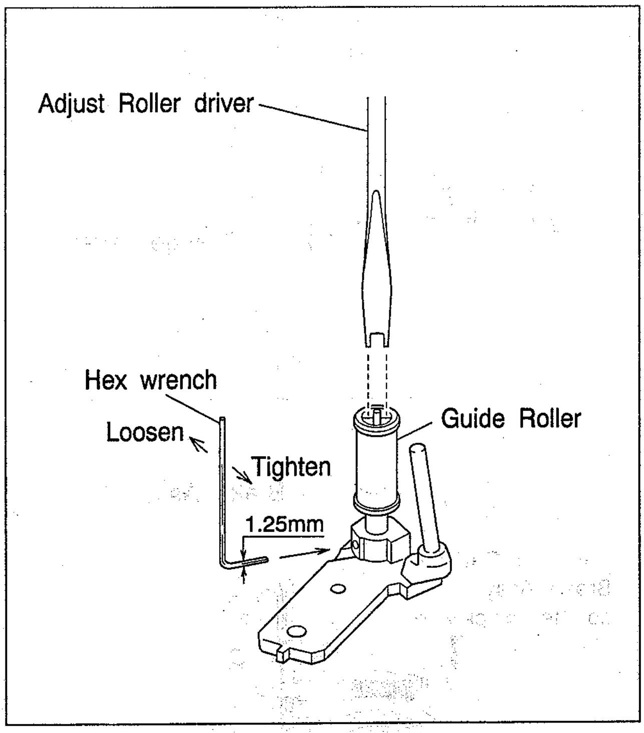


Fig. 2-7-2

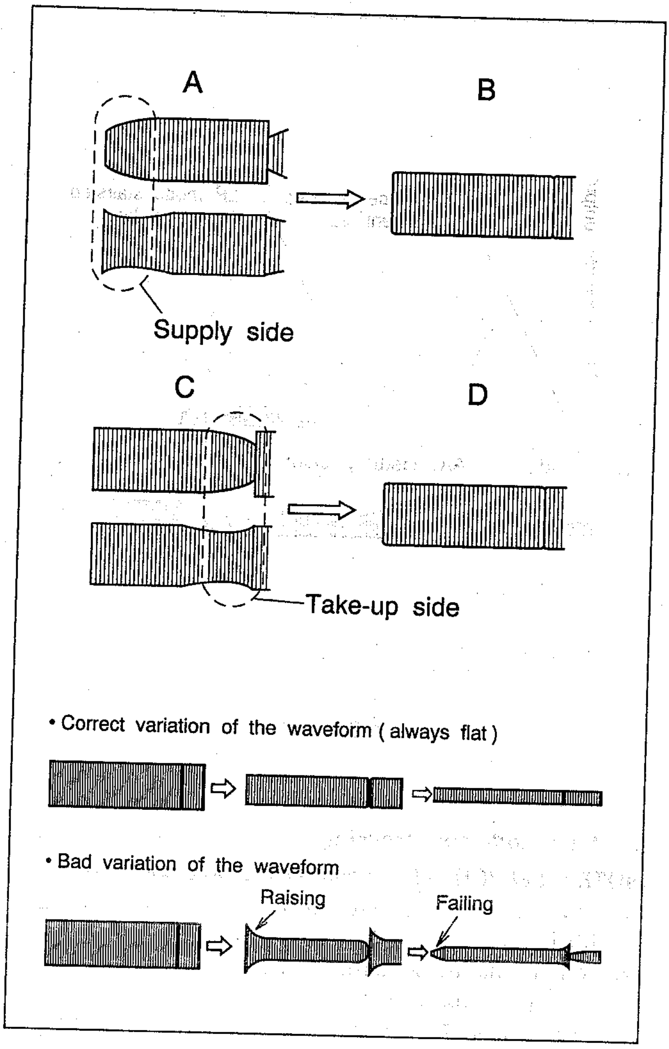

A
B
Supply side
C
D
Take-up side
• Correct variation of the waveform (always flat)
• Bad variation of the waveform
Raising
Failing

Fig. 2-7-3

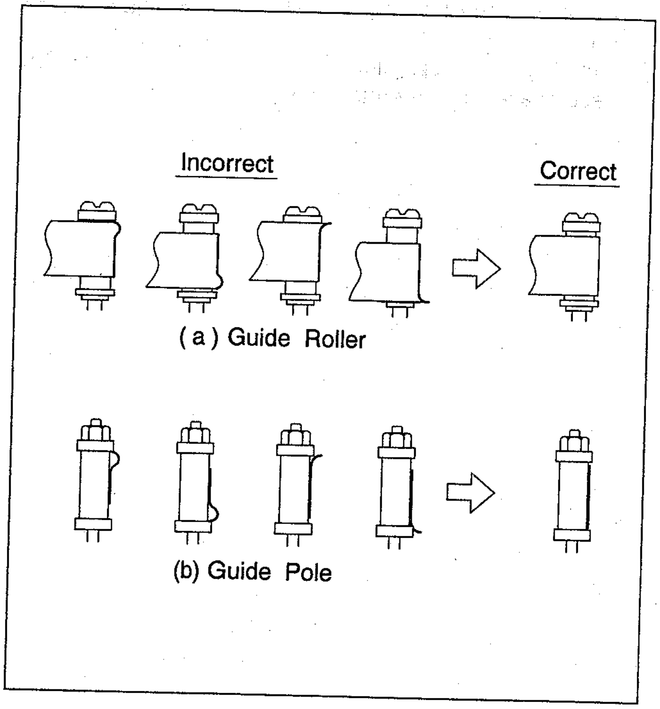

Incorrect
Correct
(a) Guide Roller
(b) Guide Pole

Fig. 2-7-4

2.7.2 A/C head height & azimuth

NOTE : • *Temporarily set A/C head height as indicated in Fig. 2-5-4.*
• *Use spare tape to check the transport and confirm the tape is not scratched or damaged.*

1. Tilt

(1) Use spare tape and set for playback.
(2) Turn screw (3) clockwise to where the tape curls just slightly at the TU guide pole bottom flange as shown in Fig.2-7-5.
(3) Then slowly turn screw (3) counterclockwise to where the curling ceases.

2. Height

(1) Connect CH-1 of a dual trace oscilloscope to Audio Out.
(2) Connect CH-2 to TP401(CTL PULSE) of the Main board assy and use the ALT mode.
(3) Playback the SP stairstep portion of the alignment tape [MHPE].
(4) Adjust screws (1),(2) and (3) for maximum audio output and control pulse level.

3. Azimuth

(1) Connect the oscilloscope to Audio Out.
(2) Playback the SP stairstep portion of the alignment tape [MHPE].
(3) Adjust screw (2) so that the audio output is both maximum and with minimum fluctuation.

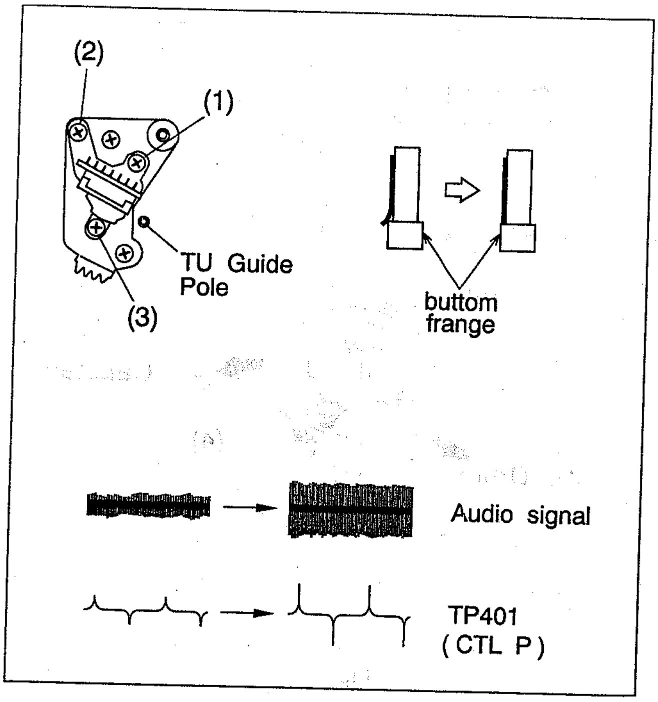

(2)
(1)
TU Guide Pole
(3)
buttom frange
Audio signal
TP401
(CTL P)

Fig. 2-7-5

2.7.3 A/C head phase(X-value)

(1) Connect the oscilloscope to TP6(PB FM) on the PRE/REC board.Use TP11(D.FF) on the PRE/REC board as a trigger.

(2) Playback the SP stairstep portion of the alignment tape [MHPE].

(3) Set the neutral manual tracking position by pressing the //// button on the remote controller or TV PROG "-" and "+" buttons simultaneously.

(4) If adjustment is required,slightly loosen screws (4) and (5). Set A/C head positioning tool on the A/C head adjusting boss as indicated in Fig.2-7-6.

(5) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig.2-7-7.

(6) Tighten screw (5). Remove the tool and tighten screw (4).

(7) Eject the SP alighnment tape [MHPE] and then re-insert the LP alignment tape [MHPE-L].

(8) Playback the LP stairstep portion of the alignment tape [MHPE-L].

(9) Set the neutral manual tracking position by pressing the ////button on the remote controller or TV PROG "-" and "+" buttons simultaneously.

(10) Confirm maximum playback FM waveform output level as shown in Fig.2-7-7.

(11) If not maximum,slightly loosen the screws (4) and (5). Use the tool and adjust the head position for the nearest maximum point. Then tighten screws (4) and (5).

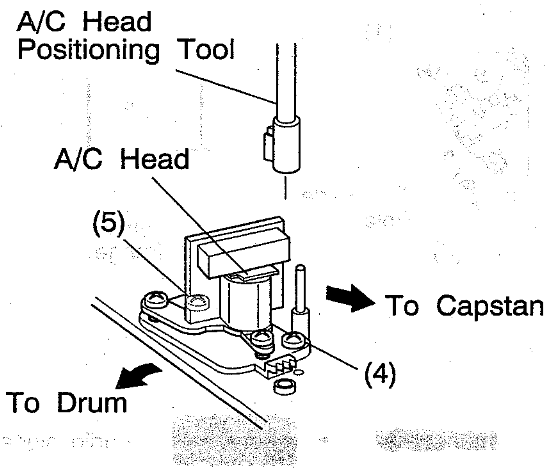


Fig. 2-7-6

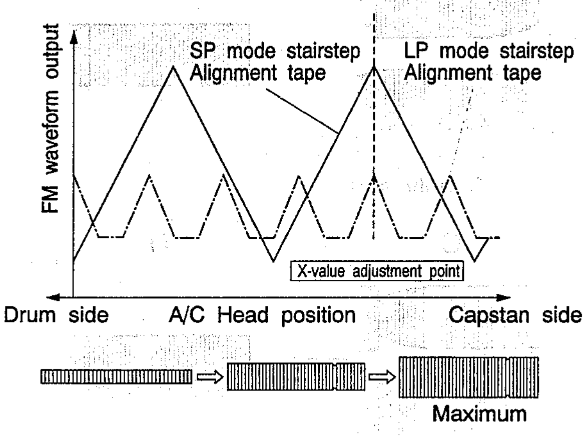


Fig. 2-7-7

2.7.4 LP mode auto tracking

NOTE : *Set VCR to the mode A by remote controller.*

(1) Playback the LP stairstep portion of the alignment tape [MHPE-L].

(2) Confirm that the Automatic tracking indication[AT]stops flashing and remains on.

(3) Press the "D" button on the presetting unit[PTU94008] to turn off the Automatic tracking indication[AT].

(4) Press the "D" button again to change the mode to the LP interchangeability adjustment mode and confirm that Automatic tracking indication[AT] stops flashing and goes off.

(5) If the alignment tape ejects automatically, repeat the A/C head phase adjustment(X-value).

2.7.5 Tension pole position

(1) Set for playback mode using MECHANISM SERVICE MODE(See SECTION 1 DISASSEMBLY).
(2) Slightly loosen the screw (A) .
(3) Turn the adjust pin so that the tension arm assy does not touch ϕ2.5 pole on the outside.
(4) Tighten the screw (A).
(5) After adjustment,use the back tension cassette gauge and set for the playback mode.
(6) Confirm reading of 35 to 48 g•cm.

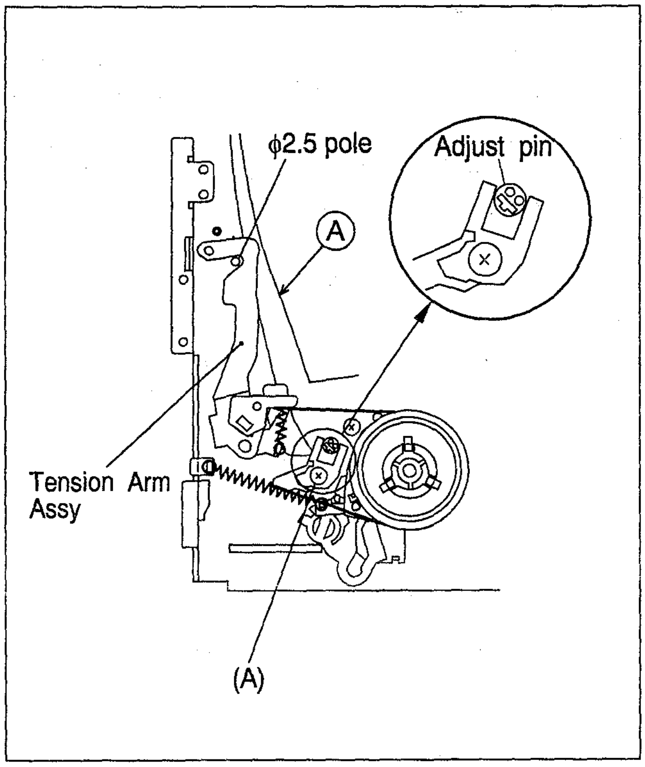


Fig. 2-7-8

2.7.6 Take-up torque

(1) Use the back tension cassette gauge and set for the playback mode.
(2) Confirm reading of 60 to 100 g•cm.

SECTION 3
ELECTRICAL ADJUSTMENT

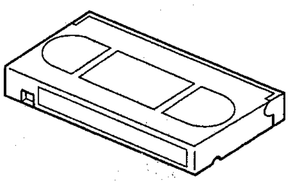
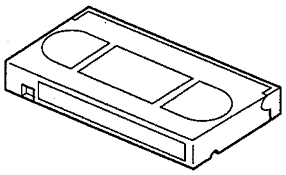
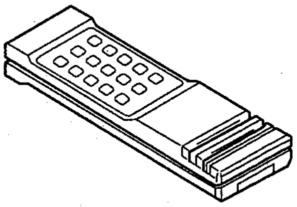
3.1 PRECAUTION

Electrical adjustment are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also do not attempt these adjustments unless the proper equipments is available.

3.1.1 Required test equipment

① Colour television or monitor
② Oscilloscope: wide-band,dual-trace,triggered delayed sweep
③ Frequency counter
④ Digital voltmeter
⑤ Signal generator: RF/IF sweep/maker
⑥ Signal generator: PAL colour bar, stairstep
⑦ Recording tape
⑧ Digit-key remote controller(provided)

3.1.2 Required adjustment tools

Alignment tape (SP,stairstep) MHPE	Alignment tape (SP,colour bar) MHVE-2
	
Presetting unit PTU94008	
	

3.1.3 Colour bar signal,colour bar pattern

- Colour bar signal

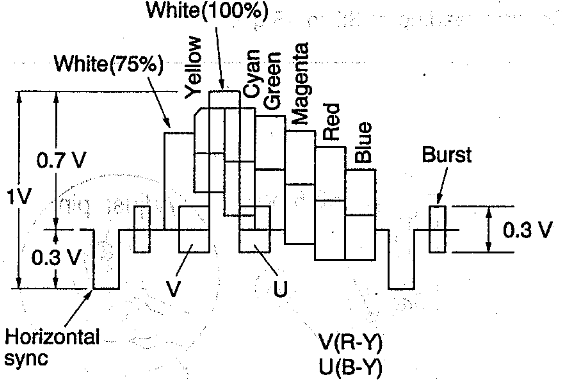

White(100%)
White(75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
0.7 V
1V
0.3 V
0.3 V
V
U
Horizontal sync
V(R-Y)
U(B-Y)

Fig.3-1-1 Colour bar signal waveform

- Colour bar pattern

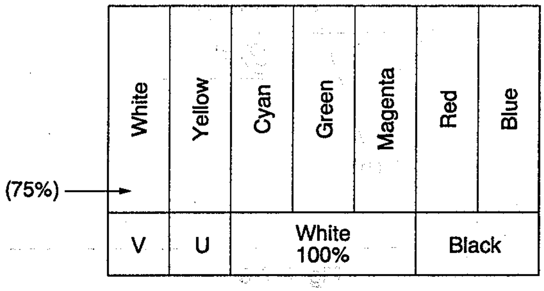

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
V
U
White 100%
Black

Fig.3-1-2 Colour bar pattern

3.2 SERVO CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
- *Set VCR to the mode A by remote controller.*
- *Use only buttons "E" and "F", depressing other buttons during adjustment may cause adjustment errors.*

1. PB switching point

Signal	• Alignment tape [MHPE],Stairstep
Mode	• PB,Automatic tracking OFF
Equipment	• Oscilloscope
Measurement point	• JA701- pin 19 (VIDEO OUT) [TERMINAL BOARD]
Trigger slope (-)	• TP11(DRUM FF) , [PRE/REC BOARD]
Adjustment tool	• Presetting unit [PTU94008]
Specification	• 6.5 ± 0.5H

(1) Connect an oscilloscope to JA701- pin 19 (VIDEO OUT) and external trigger from TP11 (negative slope).
(2) Playback the stairstep signal of the alignment tape.
(3) Set the tracking control to the centre position by simultaneously pressing the TV PROG "+" and "–" buttons or pressing the /// button on the remote controller.
(4) Adjust by pressing "E" or "F" buttons of the presetting unit to position the trigger point 6.5 ± 0.5 H from V.sync.
(5) Depress the STOP button.

Alternate method
(1) Playback the stairstep signal of the alignment tape.
(2) Press the "O" button of the presetting unit.
(3) Confirm that VCR mode becomes STOP mode.

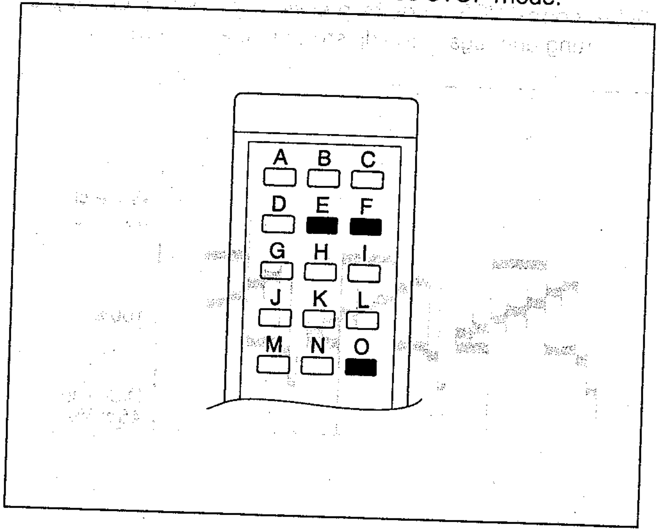


Fig.3-2-1 Presetting unit

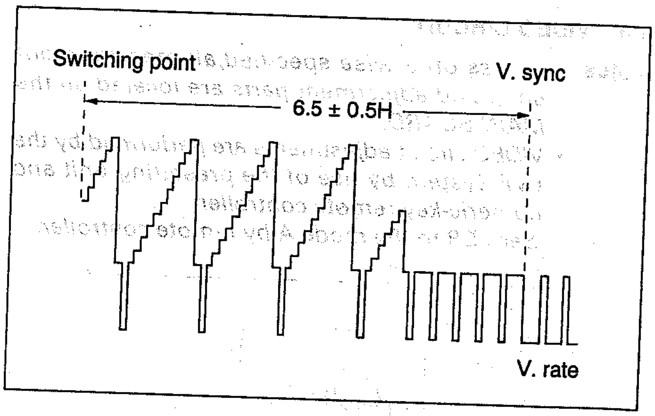


Fig.3-2-2 PB switching point

2. Slow tracking preset

Signal	• Tuner or colour bar
Mode	• SP/LP, REC → PB(SLOW)
Equipment	• TV-Monitor
Adjustment tool	• Presetting unit [PTU94008]
Specification	• Minimum noise

Note : *Set VCR to the mode A by remote controller. Use only buttons "B" and "C", depressing other buttons during adjustment may cause adjustment errors.*

(1) Record a colour bar signal in the SP mode.
(2) Playback recorded signal on the FWD slow mode.
(3) Observe the display on the TV monitor and adjust for optimum noise condition (best tracking) by depressing "B " or "C " buttons of the presetting unit.
(4) Depress the STOP button.
(5) Confirm that the bar noise is not visible on the TV monitor in the slow mode.
(6) Repeat steps (2) to (5) in the LP mode.

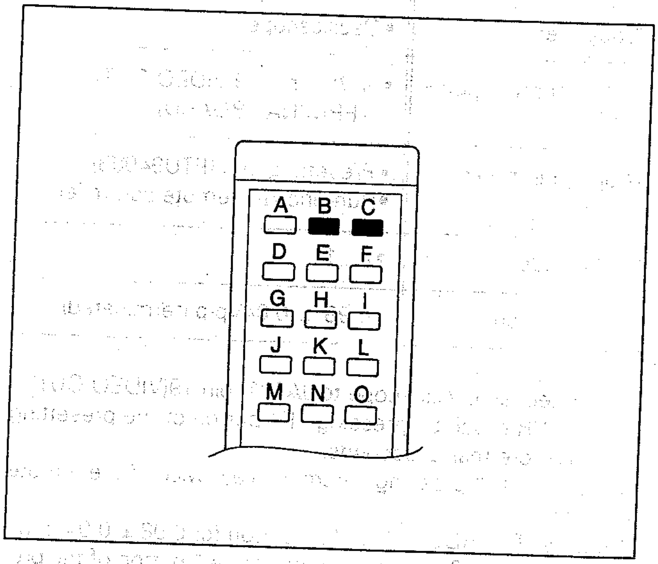


Fig.3-2-3 Presetting unit

3.3 VIDEO CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
- *VIDEO circuit adjustments are performed by the EVR system by use of the presetting unit and numeric-key remote controller.*
- *Set VCR to the mode A by remote controller.*

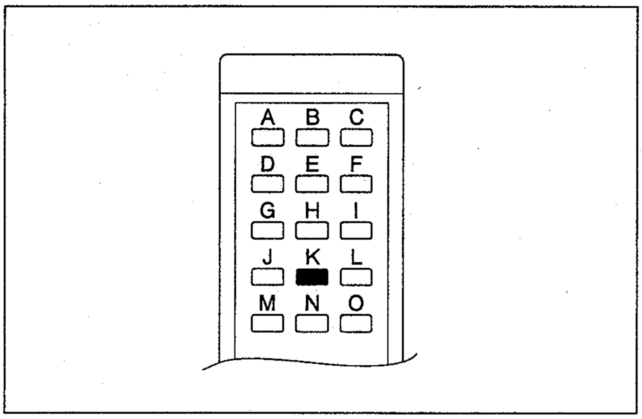


Fig.3-3-1 Presetting unit

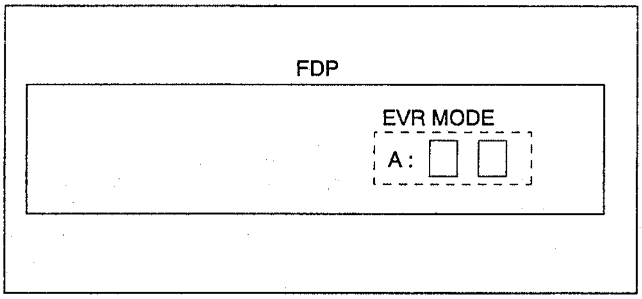


Fig.3-3-2 EVR mode

3.3.1 EE Y LEVEL

Signal	• Colour bar
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• JA701- pin 19(VIDEO OUT) [TERMINAL BOARD]
Adjustment tool	• Presetting unit [PTU94008], • Numeric-key remote controller
EVR mode	• A : 11
Specification	• 0.98 ± 0.04Vp-p (terminated)

(1) Connect an oscilloscope to JA701- pin 19(VIDEO OUT).
(2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
(3) Set "A : 11" pressing 1 numeric key twice of the remote controller.
(4) Adjust TV PROG "–" or "+" button for 0.98 ± 0.04Vp-p.
(5) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

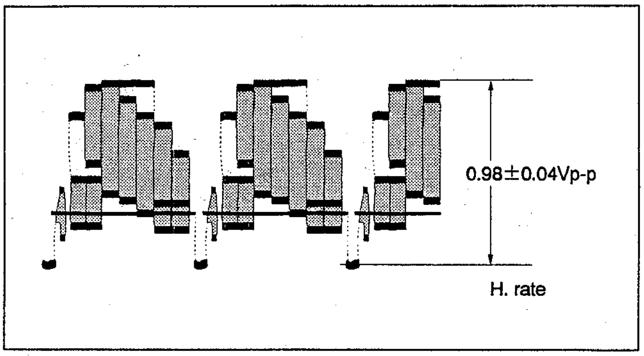


Fig. 3-3-3 EE Y level

3.3.2 WHITE/DARK CLIP

Signal	• Colour bar
Mode	• EE
Equipment	• Oscilloscope
Measurement point	• IC201 pin 13
Adjustment tool	• Presetting unit [PTU94008], • Numeric-key remote controller
EVR mode	• A : 14
Specification	• WHITE CLIP : 90 ± 4% DARK CLIP : 45 ± 8%

(1) Connect an oscilloscope to IC201 pin 13.
(2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
(3) Set "A : 14" pressing 1 and 4 numeric keys of the remote controller.
(4) Adjust TV PROG "–" or "+" button for 90 ± 4% white clip and 45 ± 8% dark clip as shown in Fig.3-3-4.
(5) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

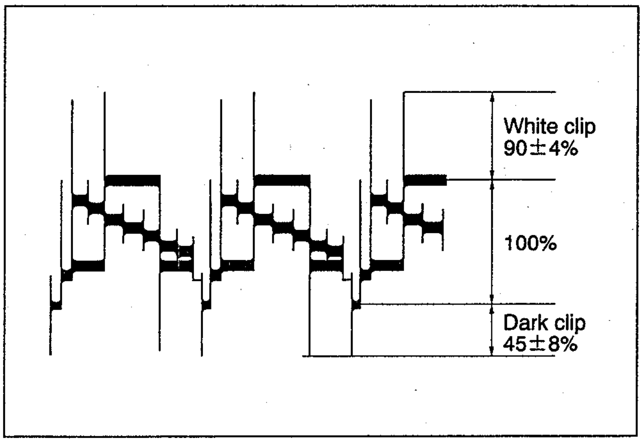


Fig.3-3-4 Whate/dark clip

3.3.3 PB Y LEVEL

Signal	• Alignment tape [MHVE-2],colour bar
Mode	• PB
Equipment	• Oscilloscope
Measurement point	•JA 701- pin 19 (VIDEO OUT) [TERMINAL BOARD]
Adjustment tool	• Presetting unit [PTU94008], •Numeric-key remote controller
EVR mode	•A : 11
Specification	•0.98 ± 0.04Vp-p (terminated)

(1) Connect an oscilloscope to JA701- pin 19(VIDEO OUT).
(2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
(3) Set "A : 11" pressing 1 numeric key twice of the remote controller.
(4) Playback the colour bar signal of the alignment tape.
(5) Adjust TV PROG "−" or "+" button for 0.98 ± 0.04Vp-p as shown in Fig.3-3-5.
(6) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

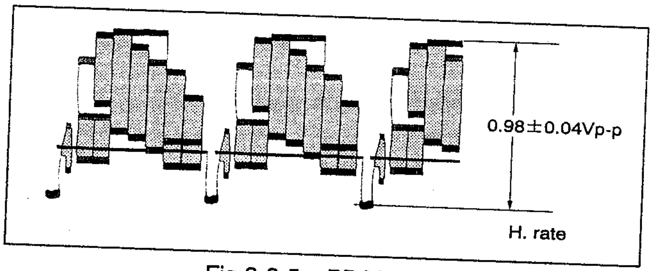


Fig.3-3-5 PB Y level

3.3.4 CARRIER

Signal	• No signal
Mode	• EE
Equipment	• Frequency counter
Measurement point	• IC201 pin 19
Adjustment tool	• Presetting unit [PTU94008], •Numeric-key remote controller
EVR mode	•A : 12
Specification	• 3.80MHz ± 0.04MHz

(1) Connect an oscilloscope to IC201 pin 19.
(2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
(3) Set "A : 12" pressing 1 and 2 numeric keys of the remote controller.
(4) Adjust TV PROG "−" or "+" button for 3.80MHz ± 0.04MHz.
(5) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

3.3.5 DEVIATION

Signal	• Colour bar
Mode	•REC then PB
Equipment	• Oscilloscope
Measurement point	• JA701- pin 19 (VIDEO OUT)
Adjustment tool	• Presetting unit [PTU94008], •Numeric-key remote controller
EVR mode	•A : 13
Specification	•0.98 ± 0.04Vp-p (terminated)

(1) Connect an oscilloscope to JA501- pin 19(VIDEO OUT).
(2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
(3) Set "A : 13" pressing 1 and 3 numeric keys of the remote controller.
(4) Record and playback a colour bar signal.
(5) Before recording, Adjust TV PROG "-" or "+" button so that Y level becomes 0.98 ± 0.04Vp-p during playback as shown in Fig.3-3-6.
(6) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

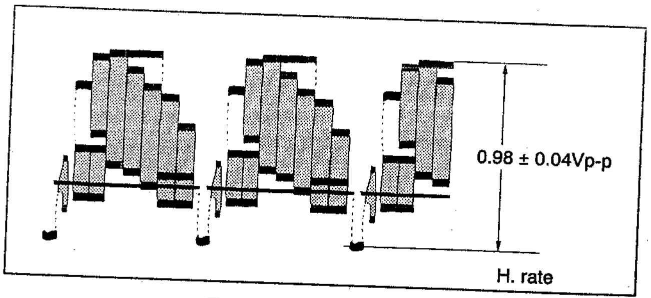


Fig.3-3-6 Deviation

3.3.6 REC COLOUR LEVEL

Signal	• Colour bar
Mode	• REC
Equipment	• Oscilloscope
Measurement point	• IC201 pin 33
Adjustment tool	• Presetting unit [PTU94008], •Numeric-key remote controller
EVR mode	• A : 2
Specification	•250 ± 15mVp-p

(1) Connect an oscilloscope to IC201 pin 33.
(2) Set EVR mode by pressing "K" button of the presetting unit more than 2 seconds.
(3) Set "A : 2" pressing 2 numeric key of the remote controller

(4) Adjiust TV PROG "–" or "+" button for 250 ± 15mVp-p.

(5) Set normal VCR mode by pressing "K" button of the presetting unit again so adjustment data is memorized.

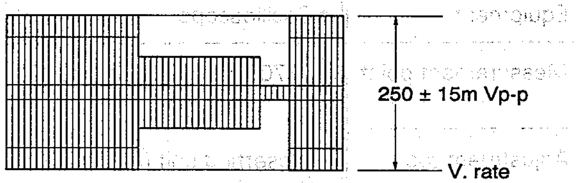


Fig.3-3-7 REC colour level

3.4 SYSCON CIRCUIT

Notes:
- *Unless otherwise specified,all measurement point and adjustment parts are located on the MAIN BOARD.*
- *When performing this adjustment,remove the MECHANISM assy.*

3.4.1 Timer clock

Signal	• No signal
Mode	• EE
Equipment	• Frequency counter
Measurement point	• TP602 round (SYS.CLK)
Adjustment part	• C601 (TIMER CLOCK)
Specification	• 1024.008 ± 0.001 Hz [976.5549 ± 0.0010 usec]

(1) Connect the frequency counter to TP602 round and GND.

(2) Connect the short wire between TP601 round and IC601 pin 63.

(3) Short the leads of capacitor C604 once in order to reset IC601.

(4) Disconnect the short wire then connect it again quickly.

(5) Adjust C601 for 1024.008 ± 0.001 Hz.
(976.5549 ± 0.0010 usec)

3.5 TUNER CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the IF UNIT.*

3.5.1 RF AGC

Signal	• TV broadcasting
Mode	• Tuner
Equipment	• TV monitor
Measurement point	• IF UNIT
Adjustment part	• IF VR
Specification	• Minimum noise

Note: *Adjust IF VR (RF AGC) to correct for excess noise in the picture or when streaks cross interference occurs due to strong electrical fields.*

(1) Adjust IF VR to minimize noise or streaks on the TV screen.

(2) Adjust for noisy picture with strong signal. Then adjust until noise just disappears. Select other channels to confirm proper pick-up of channels.

SECTION 4
CHARTS AND DIAGRAMS

SCHEMATIC DIAGRAM NOTES

Safety precautions

The Components identified by the symbol ⚠ are critical for safety. For continued safety, replace safety critical components only with manufactures recommended parts.

1. Schematic diagram values

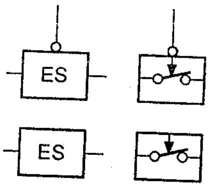
Unless otherwise specified.

1) All resistance values are in ohms. 1/6 W, 1/8 W (refer to parts list).
   Chip resistors are 1/16 W.
   K: KΩ (1000Ω), M: MΩ (1000KΩ)
2) All capacitance values are in μF, (P: PF).
3) All inductance values in μH, (m: mH).
4) All diodes are 1SS133 or MA165, (refer to parts list).

2. Indications

AUX : Active only at high.

$\overline{\text{AUX}}$: Active only at low.

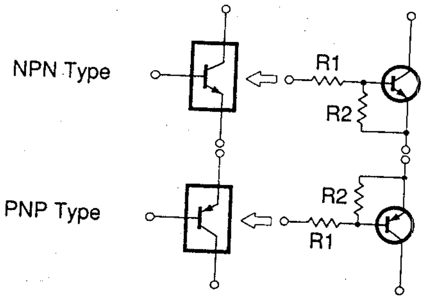


Active only at low for electronic switch.

Active only at high for electronic switch.

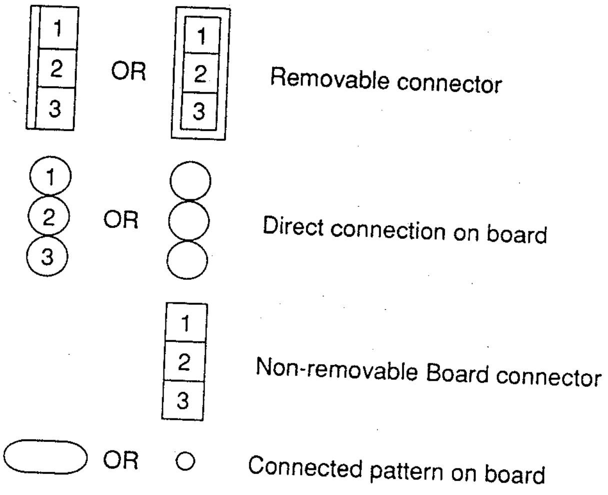
Digital transistor :

The digital transistor includes built in resistors.
It features small size and high reliability.



NPN Type
R1
R2
PNP Type
R2
R1

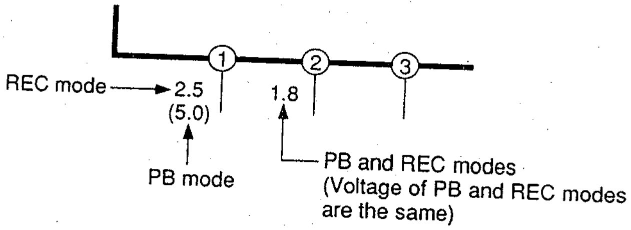
3. Interpreting Connector indications



1
2
3
OR
1
2
3
Removable connector
1
2
3
OR
Direct connection on board
1
2
3
Non-removable Board connector
OR
Connected pattern on board

4. Voltage measurement

1) Video circuits
   REC: Colour bar signal in SP mode, normal VHS mode.
   PB : Alignment tape, colour bar SP mode, normal VHS mode.
   — : Unmeasurable or unnecessary to measure.
2) Audio circuits
   REC: 1KHz, –8 dBs sine wave signal in SP mode, Normal VHS mode.
   PB : REC then playback it.
3) Movie Camera circuits
   Measured using a correctly illuminated grey scale or colour bar test charts in the E-E mode.
4) Indication on schematic diagram
   Voltage Indications for REC and PB modes on the schematic diagram are as shown below.

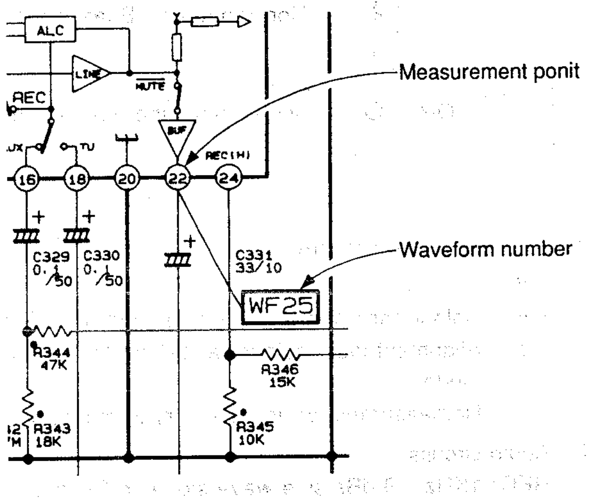


1
2
3
REC mode
2.5
(5.0)
1.8
PB mode
PB and REC modes
(Voltage of PB and REC modes are the same)

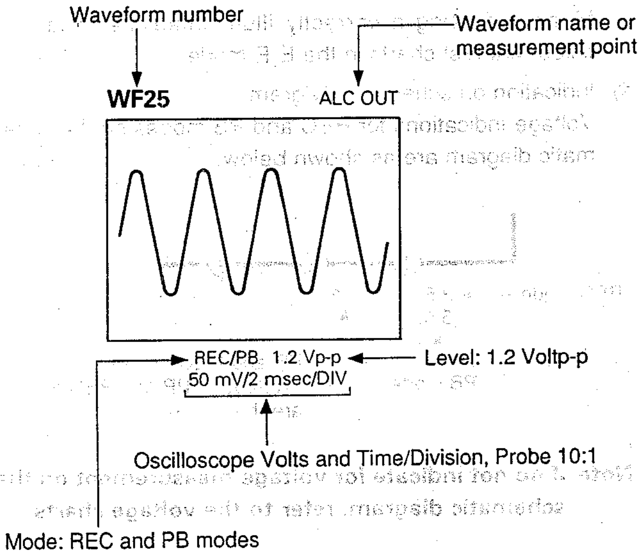
Note: If do not indicate for voltage measurement on the schematic diagram, refer to the voltage charts.

5. Waveform measurement

1) Video circuits
   REC: Colour bar signal in SP mode, normal VHS mode.
   PB : Alignment tape, colour bar SP mode, normal VHS mode.
2) Audio circuits
   REC: 1KHz, –8 dBs sine wave signal in SP mode, normal VHS mode.
   PB : REC then playback it.
3) Movie Camera circuits
   Measured using a correctly illuminated grey scale or colour bar test charts in the E-E mode.
4) Indication on schematic diagram
   Waveform indications on the schematic diagram are as shown below.

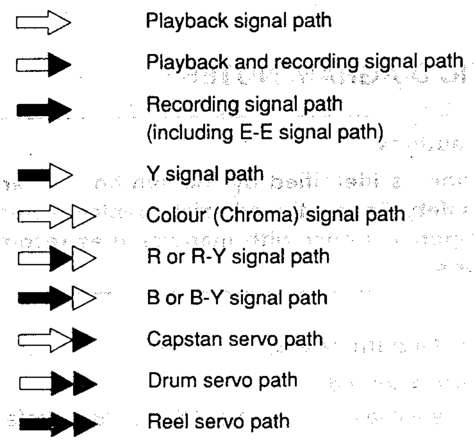

ALC
LINE
MUTE
BUF
REC
REC(H)
TV
16
18
20
22
24
C329 0.1/50
C330 0.1/50
C331 33/10
WF25
R344 47K
R343 18K
R346 15K
R345 10K
Measurement ponit
Waveform number

5) Waveform indications


Waveform number
Waveform name or measurement point
WF25
ALC OUT
REC/PB 1.2 Vp-p
50 mV/2 msec/DIV
Level: 1.2 Voltp-p
Oscilloscope Volts and Time/Division, Probe 10:1
Mode: REC and PB modes

6. Signal path Symbols

The arrows indicate the signal path as follows.


Playback signal path
Playback and recording signal path
Recording signal path (including E-E signal path)
Y signal path
Colour (Chroma) signal path
R or R-Y signal path
B or B-Y signal path
Capstan servo path
Drum servo path
Reel servo path

CIRCUIT BOARD NOTES

1. Colour indications

1) Foil side :
   Foil side patterns are indicated at GREY shading.
2) Component side :
   Component side patterns are indicated at RED shading.

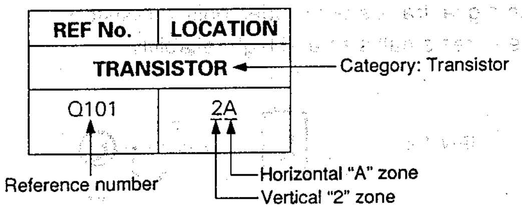
2. Foil and Component sides

1) Foil side (B side) :
   Parts on the foil side seen from foil face (pattern face) are indicated.
2) Component side (A side) :
   Parts on the component side seen from component face (parts face) are indicated.

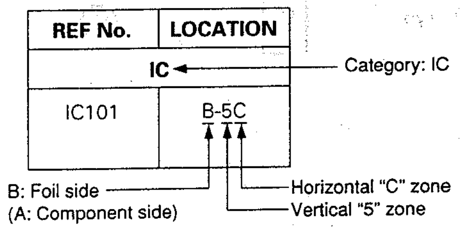
3. Parts location guides

Parts location are indicated by guide scale on the circuit board.

1) Signal pattern :


REF No.
LOCATION
TRANSISTOR
Category: Transistor
Q101
2A
Reference number
Horizontal "A" zone
Vertical "2" zone

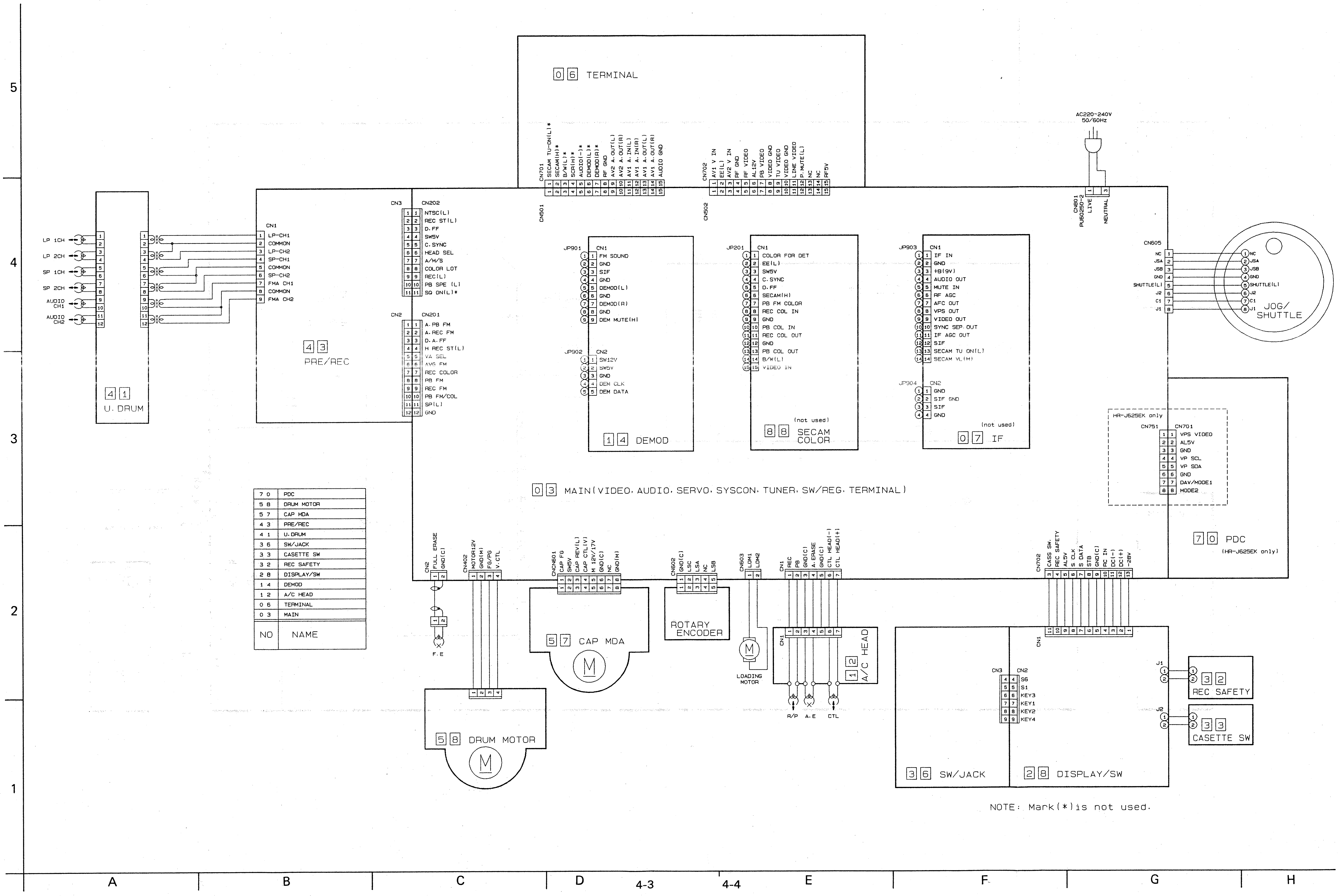
2) Double pattern :


REF No.
LOCATION
IC
Category: IC
IC101
B-5C
B: Foil side
(A: Component side)
Horizontal "C" zone
Vertical "5" zone

Notes:

1) **For general information in service manual, please refer to the Service Manual of GENERAL INFORMATION Edition 4 No. 82054D (January 1994).**
2) **For repairing SMC (Surface Mounted Components), please refer to the VIDEO SERVICE GUIDE No. VTS81001.**

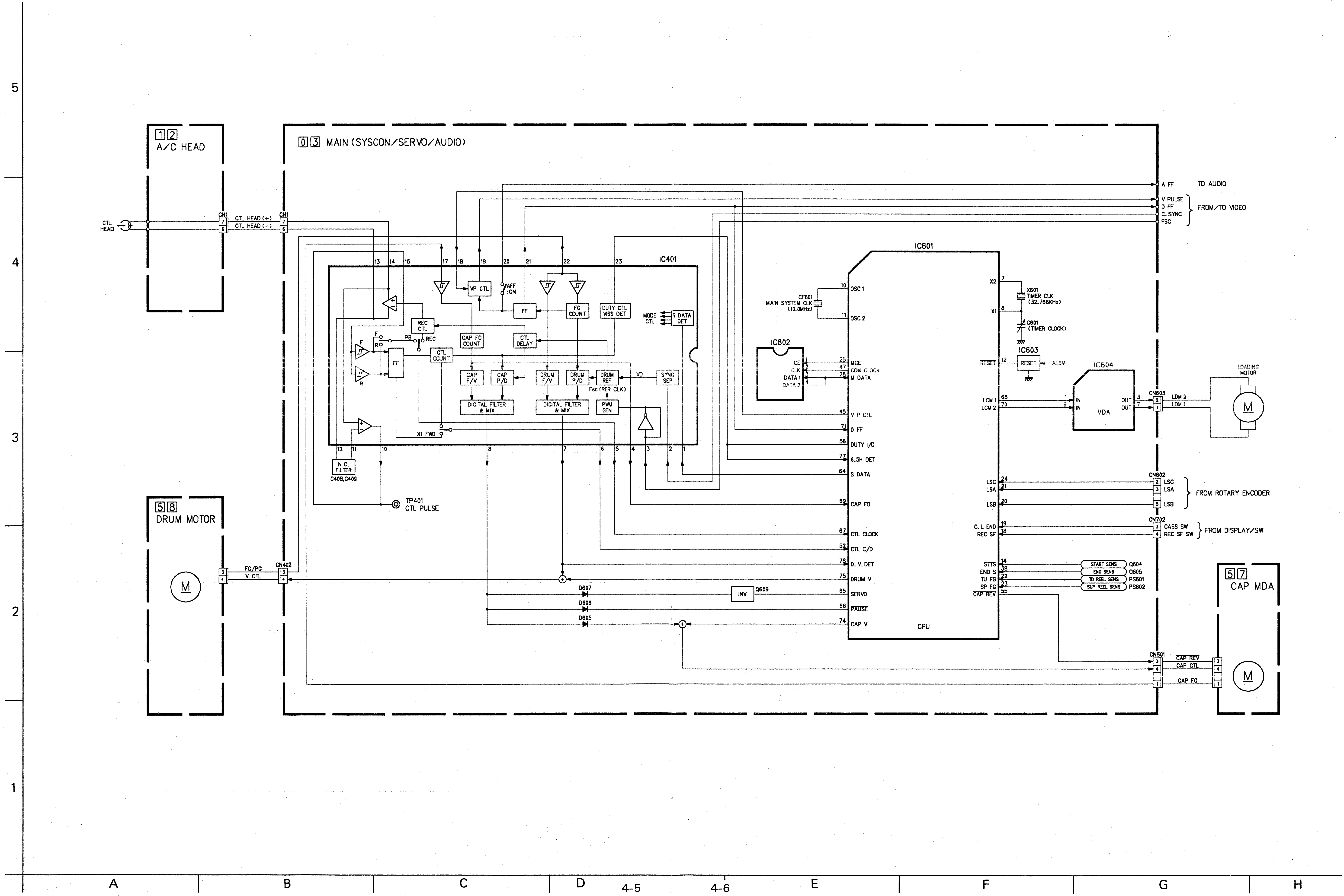
4.1 BOARD INTERCONNECTIONS


0 6 TERMINAL
CN701
SECAM TU-ON(L)*
SECAM(H)*
B/W(L)*
SCR(H)*
AUDIO(-)*
DEMOD(L)*
DEMOD(R)*
RF GND
AV2 A.OUT(L)
AV2 A.OUT(R)
AV1 A.IN(L)
AV1 A.IN(R)
AV1 A.OUT(L)
AV1 A.OUT(R)
AUDIO GND
CN501
CN702
AV1 V IN
EE(L)
AV2 V IN
RF GND
RF VIDEO
AL12V
PB VIDEO
VIDEO GND
TU VIDEO
VIDEO GND
LINE VIDEO
P.MUTE(L)
NC
NC
RF5V
CN502
AC220~240V
50/60Hz
CN801
PU60250-2
LIVE
NEUTRAL
LP 1CH
LP 2CH
SP 1CH
SP 2CH
AUDIO CH1
AUDIO CH2
4 1
U.DRUM
CN1
LP-CH1
COMMON
LP-CH2
SP-CH1
COMMON
SP-CH2
FMA CH1
COMMON
FMA CH2
4 3
PRE/REC
CN3
CN202
NTSC(L)
REC ST(L)
D.FF
SW5V
C.SYNC
HEAD SEL
A/M/S
COLOR LOT
REC(L)
PB SPE (L)
SQ ON(L)*
CN2
CN201
A.PB FM
A.REC FM
D.A.FF
H REC ST(L)
VA SEL
AVG FM
REC COLOR
PB FM
REC FM
PB FM/COL
SP(L)
GND
JP901
CN1
FM SOUND
GND
SIF
GND
DEMOD(L)
GND
DEMOD(R)
GND
DEM MUTE(H)
JP902
CN2
SW12V
SW5V
GND
DEM CLK
DEM DATA
1 4 DEMOD
JP201
CN1
COLOR FOR DET
EE(L)
SW5V
C.SYNC
D.FF
SECAM(H)
PB FM COLOR
REC COL IN
GND
PB COL IN
REC COL OUT
GND
PB COL OUT
B/W(L)
VIDEO IN
(not used)
8 8 SECAM COLOR
JP903
CN1
IF IN
GND
+B(9V)
AUDIO OUT
MUTE IN
RF AGC
AFC OUT
VPS OUT
VIDEO OUT
SYNC SEP.OUT
IF AGC OUT
SIF
SECAM TU ON(L)
SECAM VL(H)
JP904
CN2
GND
SIF GND
SIF
GND
(not used)
0 7 IF
CN605
NC
JSA
JSB
GND
SHUTTLE(L)
J2
C1
J1
JOG/SHUTTLE
HR-J625EK only
CN751
CN701
VPS VIDEO
AL5V
GND
VP SCL
VP SDA
GND
DAV/MODE1
MODE2
7 0 PDC
(HR-J625EK only)
0 3 MAIN(VIDEO, AUDIO, SERVO, SYSCON, TUNER, SW/REG, TERMINAL)
CN2
FULL ERASE
GND(C)
F.E
CN402
MOTOR12V
GND(M)
FG/PG
V.CTL
5 8 DRUM MOTOR
CNCN601
CAP FG
SW5V
CAP REV(L)
CAP CTL(V)
M 12V/17V
GND(C)
NC
GND(M)
5 7 CAP MDA
CN602
GND(C)
LSC
LSA
NC
LSB
ROTARY ENCODER
CN603
LDM1
LDM2
LOADING MOTOR
CN1
REC
PB
GND(C)
A.ERASE
GND(C)
CTL HEAD(-)
CTL HEAD(+)
1 2 A/C HEAD
R/P
A.E
CTL
CN702
CASS SW.
REC SAFETY
AL5V
S CLK
S DATA
STB
GND(C)
RC IN
DC(-)
DC(+)
-28V
CN1
CN3
CN2
S6
S1
KEY3
KEY1
KEY2
KEY4
3 6 SW/JACK
2 8 DISPLAY/SW
J1
3 2 REC SAFETY
J2
3 3 CASETTE SW
M
5
4
3
2
1
A
B
C
D
E
F
G
H

NO	NAME
7 0	PDC
5 8	DRUM MOTOR
5 7	CAP MDA
4 3	PRE/REC
4 1	U.DRUM
3 6	SW/JACK
3 3	CASETTE SW
3 2	REC SAFETY
2 8	DISPLAY/SW
1 4	DEMOD
1 2	A/C HEAD
0 6	TERMINAL
0 3	MAIN

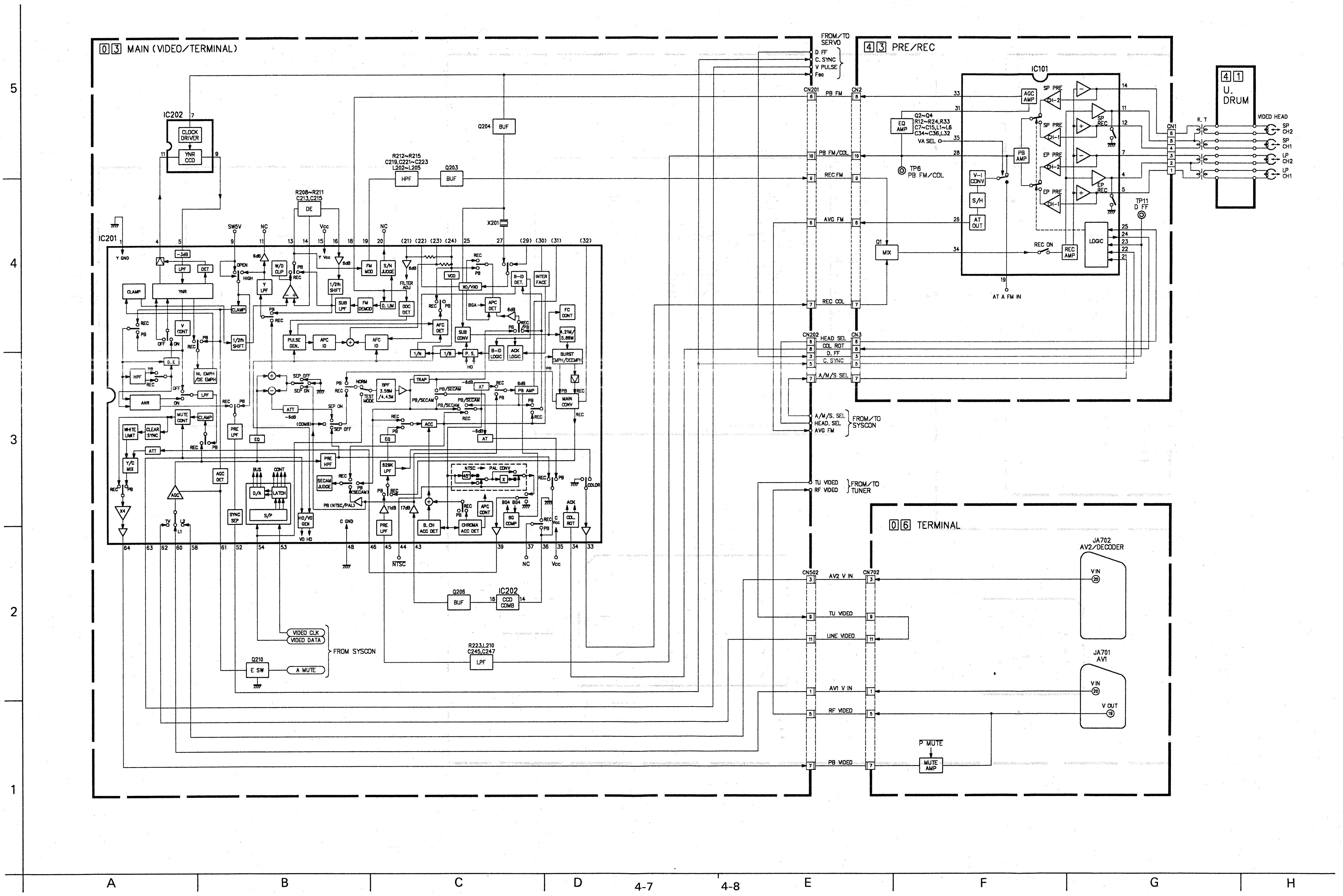
NOTE: Mark(*)is not used.

4.2 SYSCON/SERVO BLOCK DIAGRAM

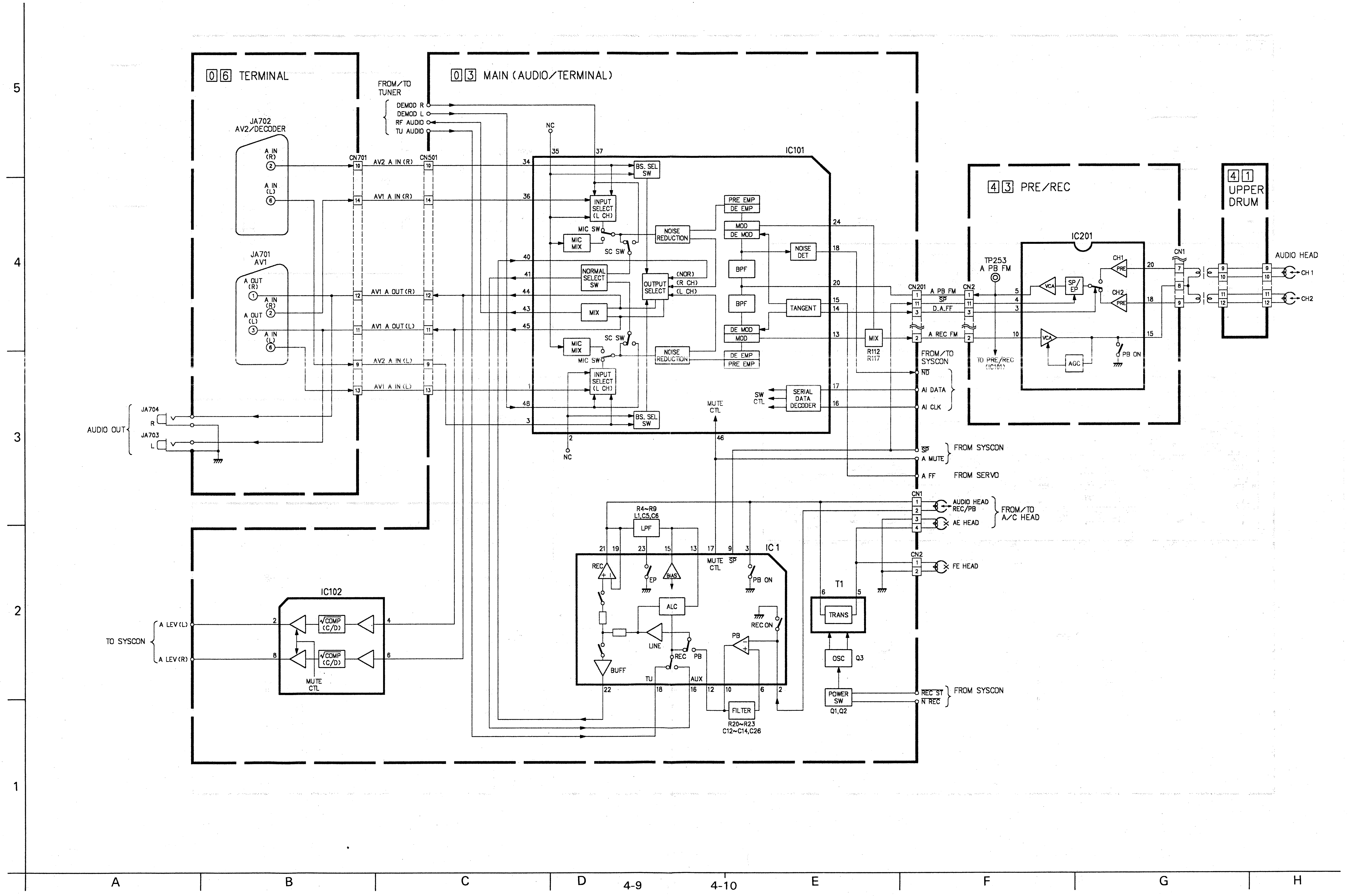


1 2 A/C HEAD
CTL HEAD
CN1
CTL HEAD (+)
CTL HEAD (−)
0 3 MAIN (SYSCON/SERVO/AUDIO)
IC401
VP CTL
AFF :ON
FF
FG COUNT
DUTY CTL VISS DET
MODE CTL
S DATA DET
REC CTL
PB
REC
CAP FG COUNT
CTL DELAY
CTL COUNT
CAP F/V
CAP P/D
DRUM F/V
DRUM P/D
DRUM REF
VD
SYNC SEP
Fsc (RER CLK)
DIGITAL FILTER & MIX
PWM GEN
X1 FWD
N.C. FILTER
C408,C409
TP401 CTL PULSE
IC601
OSC 1
OSC 2
CF601 MAIN SYSTEM CLK (10.0MHz)
X2
X1
X501 TIMER CLK (32.768KHz)
C601 (TIMER CLOCK)
IC603
RESET
AL5V
IC602
CE
CLK
DATA 1
DATA 2
MCE
COM CLOCK
M DATA
V P CTL
D FF
DUTY I/O
6.5H DET
S DATA
CAP FG
CTL CLOCK
CTL C/D
D. V. DET
DRUM V
SERVO
PAUSE
CAP V
CPU
D607
D606
D605
INV
Q609
IC604
MDA
LCM 1
LCM 2
IN
OUT
CN603
LDM 2
LDM 1
LOADING MOTOR
M
A FF
TO AUDIO
V PULSE
D FF
C. SYNC
FSC
FROM/TO VIDEO
LSC
LSA
LSB
CN602
FROM ROTARY ENCODER
C. L END
REC SF
CN702
CASS SW
REC SF SW
FROM DISPLAY/SW
STTS
END S
TU FG
SP FG
CAP REV
START SENS
END SENS
TU REEL SENS
SUP REEL SENS
Q604
Q605
PS601
PS602
5 8 DRUM MOTOR
M
FG/PG
V. CTL
CN402
5 7 CAP MDA
CN501
CAP REV
CAP CTL
CAP FG
M
5
4
3
2
1
A
B
C
D
E
F
G
H

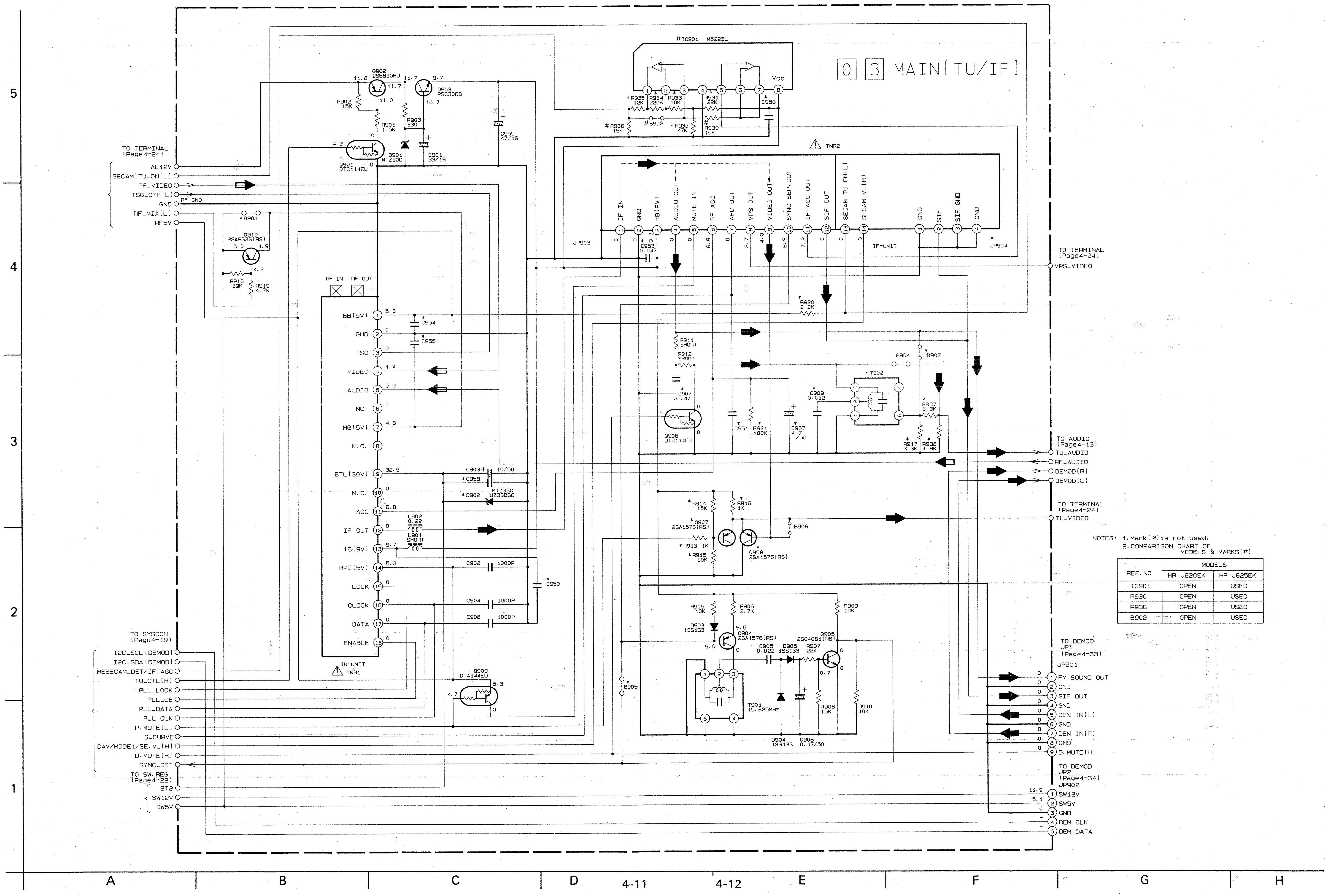
4.3 VIDEO BLOCK DIAGRAM


5
4
3
2
1
A
B
C
D
E
F
G
H
03 MAIN (VIDEO/TERMINAL)
43 PRE/REC
41 U. DRUM
06 TERMINAL
IC201
IC202
CLOCK DRIVER
YNR CCD
IC101
Q204 BUF
Q203 BUF
HPF
R212~R215 C219,C221~C223 L202~L205
R208~R211 C213,C215
DE
X201
FROM/TO SERVO
D FF
C. SYNC
V PULSE
Fsc
CN201
CN2
PB FM
PB FM/COL
REC FM
AVG FM
REC COL
CN202
CN3
HEAD SEL
COL ROT
D. FF
C. SYNC
A/M/S SEL
A/M/S. SEL
HEAD. SEL
AVG FM
FROM/TO SYSCON
TU VIDEO
RF VIDEO
FROM/TO TUNER
EQ AMP
Q2~Q4 R12~R24,R33 C7~C15,L1~L6 C34~C36,L32
VA SEL
TP6 PB FM/COL
V-I CONV
S/H
AT OUT
PB AMP
AGC AMP
SP PRE CH-2
SP PRE CH-1
EP PRE CH-2
EP PRE CH-1
SP REC
EP REC
REC AMP
LOGIC
REC ON
Q1 MIX
AT A FM IN
TP11 D FF
CN1
R. T
VIDEO HEAD
SP CH2
SP CH1
LP CH2
LP CH1
Y GND
CLAMP
YNR
-3dB
LPF
DET
V CONT
NL EMPH /DE EMPH
D. E
HPF
ANR
MUTE CONT
WHITE LIMIT
CLEAR SYNC
ATT
Y/C MIX
X4
AGC
AGC DET
SYNC SEP
PRE LPF
EQ
BUS
CONT
D/A
LATCH
S/P
HD/VD GEN
VD HD
C GND
W/D CLIP
Y LPF
1/2fh SHIFT
SUB LPF
FM DEMOD
FM MOD
S/N JUDGE
D. LIM
DOC DET
FILTER ADJ
PULSE GEN.
APC ID
AFC ID
AFC DET
VCO
XO/VXO
SUB CONV
P. S.
B-ID DET.
B-ID LOGIC
ACK LOGIC
INTER FACE
FC CONT
4.21M/ 5.86M
BURST EMPH/DEEMPH
MAIN CONV
APC DET
1/N
1/8
HD
SEP OFF
SEP ON
NORM
TEST MODE
BPF 3.58M /4.43M
TRAP
PB/SECAM
PB AMP
AT
ACC
(COMB)
PRE HPF
SECAM JUDGE
PB (NTSC/PAL)
629K LPF
NTSC → PAL CONV
45°
PRE LPF
B. CH ACC DET
CHROMA ACC DET
APC CONT
BG COMP
COL ROT
ACK
COLOR
11dB
17dB
6dB
-6dB
SW5V
NC
Vcc
NTSC
Q206 BUF
IC202 CCD COMB
R223,L210 C245,C247 LPF
VIDEO CLK
VIDEO DATA
FROM SYSCON
Q210 E SW
A MUTE
TV L1 L2
REC PB
OPEN HIGH
CN502
CN702
AV2 V IN
TU VIDEO
LINE VIDEO
AV1 V IN
RF VIDEO
PB VIDEO
P MUTE
MUTE AMP
JA702 AV2/DECODER
JA701 AV1
V IN
V OUT
(20)
(19)

4.4 AUDIO BLOCK DIAGRAM


06 TERMINAL
03 MAIN (AUDIO/TERMINAL)
FROM/TO TUNER
DEMOD R
DEMOD L
RF AUDIO
TU AUDIO
JA702 AV2/DECODER
A IN (R)
A IN (L)
JA701 AV1
A OUT (R)
A IN (R)
A OUT (L)
A IN (L)
CN701
CN501
AV2 A IN (R)
AV1 A IN (R)
AV1 A OUT (R)
AV1 A OUT (L)
AV2 A IN (L)
AV1 A IN (L)
AUDIO OUT
JA704
R
JA703
L
NC
IC101
BS. SEL SW
INPUT SELECT (L CH)
MIC SW
MIC MIX
SC SW
NOISE REDUCTION
NORMAL SELECT SW
OUTPUT SELECT
(NOR)
(R CH)
(L CH)
MIX
PRE EMP
DE EMP
MOD
DE MOD
BPF
NOISE DET
TANGENT
SERIAL DATA DECODER
SW CTL
MUTE CTL
R112
R117
CN201
A PB FM
SP
D.A.FF
A REC FM
FROM/TO SYSCON
ND
AI DATA
AI CLK
FROM SYSCON
A MUTE
A FF
FROM SERVO
43 PRE/REC
TP253
A PB FM
IC201
VCA
SP/EP
CH1
PRE
CH2
AGC
PB ON
TO PRE/REC (IC101)
CN2
CN1
41 UPPER DRUM
AUDIO HEAD
CH1
CH2
AUDIO HEAD REC/PB
AE HEAD
FROM/TO A/C HEAD
FE HEAD
R4~R9 L1,C5,C6
LPF
IC1
REC
EP
BIAS
ALC
LINE
BUFF
REC ON
PB
PB ON
MUTE CTL
SP
TU
AUX
FILTER
R20~R23 C12~C14,C26
T1
TRANS
OSC
Q3
POWER SW
Q1,Q2
REC ST
N REC
IC102
√COMP (C/D)
MUTE CTL
TO SYSCON
A LEV (L)
A LEV (R)
A
B
C
D
E
F
G
H
1
2
3
4
5

4.5 TUNER/IF SCHEMATIC DIAGRAM

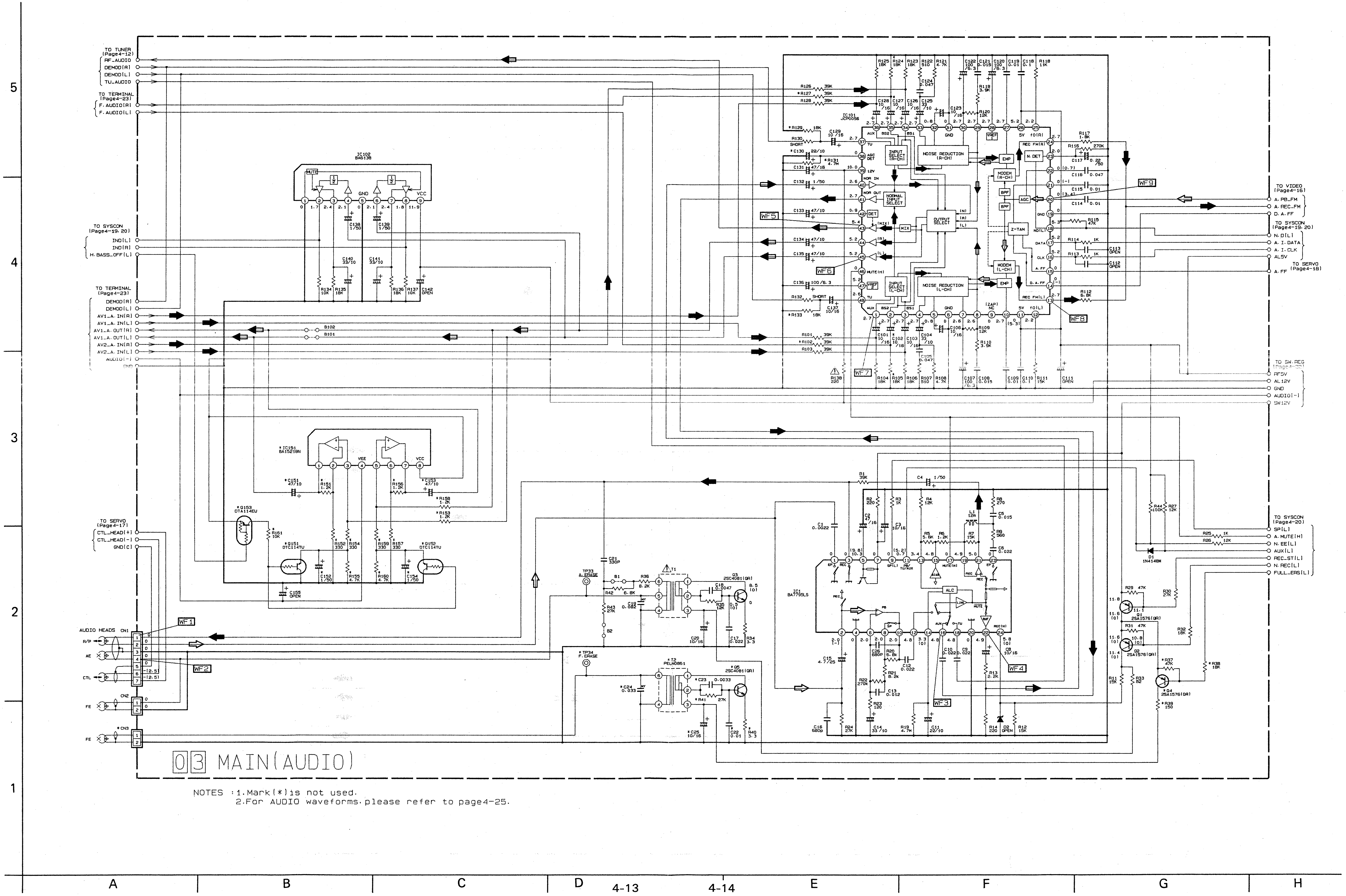


0 3 MAIN[TU/IF]
#IC901 M5223L
Vcc
*R935 12K
R934 220K
R933 10K
R931 22K
*C956
#R936 15K
#B902
*R932 47K
#R930 10K
Q902 2SB810HJ
Q903 2SC3068
R902 15K
R901 1.5K
R903 330
D901 MTZ10D
C901 33/16
C959 47/16
Q901 DTC114EU
TO TERMINAL (Page4-24)
AL12V
SECAM_TU_ON[L]
RF_VIDEO
TSG_OFF[L]
GND
RF GND
RF_MIX[L]
RF5V
*B901
Q910 2SA933S(RS)
R918 39K
R919 4.7K
RF IN
RF OUT
BB(5V)
GND
TSG
VIDEO
AUDIO
NC.
MB(5V)
N.C.
BTL(30V)
N.C.
AGC
IF OUT
+B(9V)
BPL(5V)
LOCK
CLOCK
DATA
ENABLE
TU-UNIT TNR1
*C954
*C955
C903 10/50
*C958
*D902 MTZ33C UZ33BSC
L902 0.22
L901 SHORT
C902 1000P
C904 1000P
C908 1000P
*C950
Q909 DTA144EU
TNR2
IF IN
GND
+B(9V)
AUDIO OUT
MUTE IN
RF AGC
AFC OUT
VPS OUT
VIDEO OUT
SYNC SEP. OUT
IF AGC OUT
SIF OUT
SECAM TU ON(L)
SECAM VL(H)
GND
SIF
SIF GND
GND
JP903
IF-UNIT
JP904
*C953 0.047
TO TERMINAL (Page4-24)
VPS_VIDEO
*R920 2.2K
R911 SHORT
R912 SHORT
C907 0.047
Q906 DTC114EU
B904
*B907
*T902
*C909 0.012
*C951
*R921 180K
*C957 4.7/50
*R937 3.3K
*R917 3.3K
*R938 1.8K
TO AUDIO (Page4-13)
TU_AUDIO
RF_AUDIO
DEMOD[R]
DEMOD[L]
TO TERMINAL (Page4-24)
TU_VIDEO
*R914 15K
*R916 1K
*Q907 2SA1576(RS)
*R913 1K
*R915 10K
*Q908 2SA1576(RS)
B906
R905 10K
R906 2.7K
R909 10K
D903 1SS133
Q904 2SA1576(RS)
Q905 2SC4081(RS)
C905 0.022
D905 1SS133
R907 22K
T901 15.625MHz
R908 15K
R910 10K
D904 1SS133
C906 0.47/50
*B905
TO SYSCON (Page4-19)
I2C_SCL(DEMOD)
I2C_SDA(DEMOD)
MESECAM_DET/IF_AGC
TU_CTL[H]
PLL_LOCK
PLL_CE
PLL_DATA
PLL_CLK
P.MUTE[L]
S_CURVE
DAV/MODE1/SE.VL[H]
D.MUTE[H]
SYNC_DET
TO SW.REG (Page4-22)
BT2
SW12V
SW5V
TO DEMOD JP1 (Page4-33)
JP901
FM SOUND OUT
GND
SIF OUT
GND
DEN IN[L]
GND
DEN IN[R]
GND
D.MUTE[H]
TO DEMOD JP2 (Page4-34)
JP902
SW12V
SW5V
GND
DEM CLK
DEM DATA
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTES: 1. Mark (*) is not used.
2. COMPARISON CHART OF MODELS & MARKS (#)

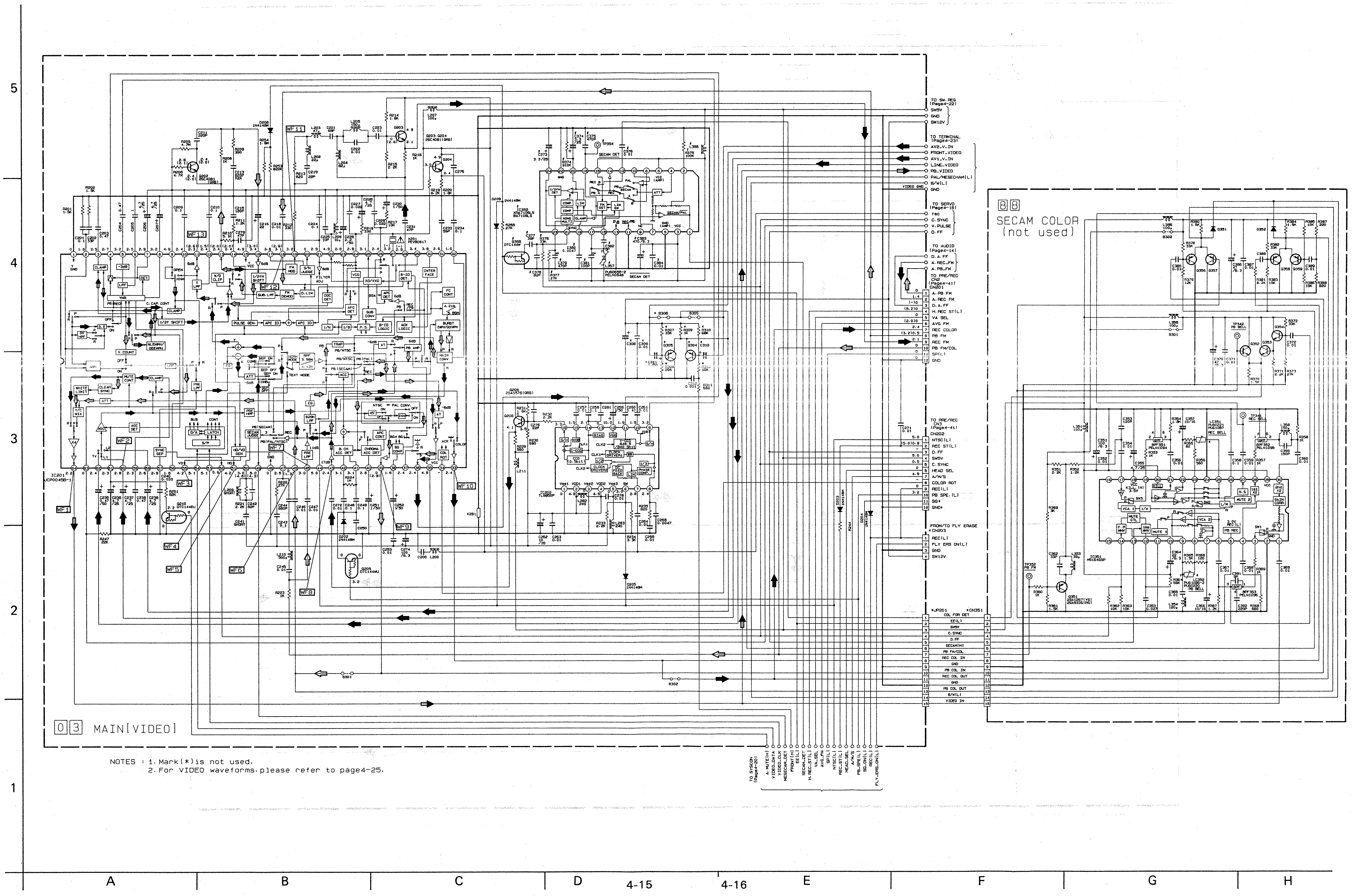
REF. NO	MODELS	
	HR-J620EK	HR-J625EK
IC901	OPEN	USED
R930	OPEN	USED
R936	OPEN	USED
B902	OPEN	USED

4.6 AUDIO SCHEMATIC DIAGRAM


TO TUNER (Page4-12)
RF_AUDIO
DEMOD(R)
DEMOD(L)
TU_AUDIO
TO TERMINAL (Page4-23)
F.AUDIO(R)
F.AUDIO(L)
IC102 BA6138
MUTE
GND
VCC
C138 1/50
C139 1/50
C140 33/10
C141 33/10
R134 10K
R135 18K
R136 18K
R137 10K
C142 OPEN
TO SYSCON (Page4-19,20)
IND(L)
IND(R)
H.BASS_OFF(L)
TO TERMINAL (Page4-23)
DEMOD(R)
DEMOD(L)
AV1_A.IN(R)
AV1_A.IN(L)
AV1_A.OUT(R)
AV1_A.OUT(L)
AV2_A.IN(R)
AV2_A.IN(L)
AUDIO(-)
GND
B102
B101
IC101 JCP0056
AUX
BS2
BS1
GND
VREF
5V
f0(R)
TU
AGC DET
12V
NOR IN
NOR OUT
DET
MIX
MUTE(H)
INPUT SELECT (R-CH)
INPUT SELECT (L-CH)
NOISE REDUCTION (R-CH)
NOISE REDUCTION (L-CH)
NORMAL INPUT SELECT
OUTPUT SELECT
EMP
N.DET
MODEM (R-CH)
MODEM (L-CH)
BPF
AGC
Z-TAN
REC FM(R)
REC FM(L)
NOIL
DATA
CLK
A.FF
D.A.FF
f0(L)
WF5
WF6
WF7
WF8
WF9
TO VIDEO (Page4-16)
A.PB_FM
A.REC_FM
D.A.FF
TO SYSCON (Page4-19,20)
N.D(L)
A.I.DATA
A.I.CLK
AL5V
TO SERVO (Page4-18)
A.FF
TO SW.REG (Page4-20)
RF5V
AL12V
GND
AUDIO(-)
SW12V
*IC151 BA15218N
VEE
VCC
*Q153 DTA114EU
*Q151 DTC114TU
*Q152 DTC114TU
C155 OPEN
TO SERVO (Page4-17)
CTL_HEAD(+)
CTL_HEAD(-)
GND(C)
TP33 A.ERASE
C21 330P
T1
Q3 2SC4081(QA)
*TP34 F.ERASE
*T2 PEL0086-1
*Q5 2SC4081(QA)
IC1 BA7795LS
ALC
LINE
MUTE
REC(H)
SP(L)
TU/AUX
PB
MUTE(H)
WF1
WF2
WF3
WF4
AUDIO HEADS CN1
R/P
AE
CTL
FE
CN2
*CN3
TO SYSCON (Page4-20)
SP(L)
A.MUTE(H)
N.EE(L)
AUX(L)
REC.ST(L)
N.REC(L)
FULL_ERS(L)
D1 1N4148M
Q1 2SA1576(QA)
Q2 2SA1576(QA)
*Q4 2SA1576(QA)
03 MAIN(AUDIO)
1
2
3
4
5
A
B
C
D
E
F
G
H

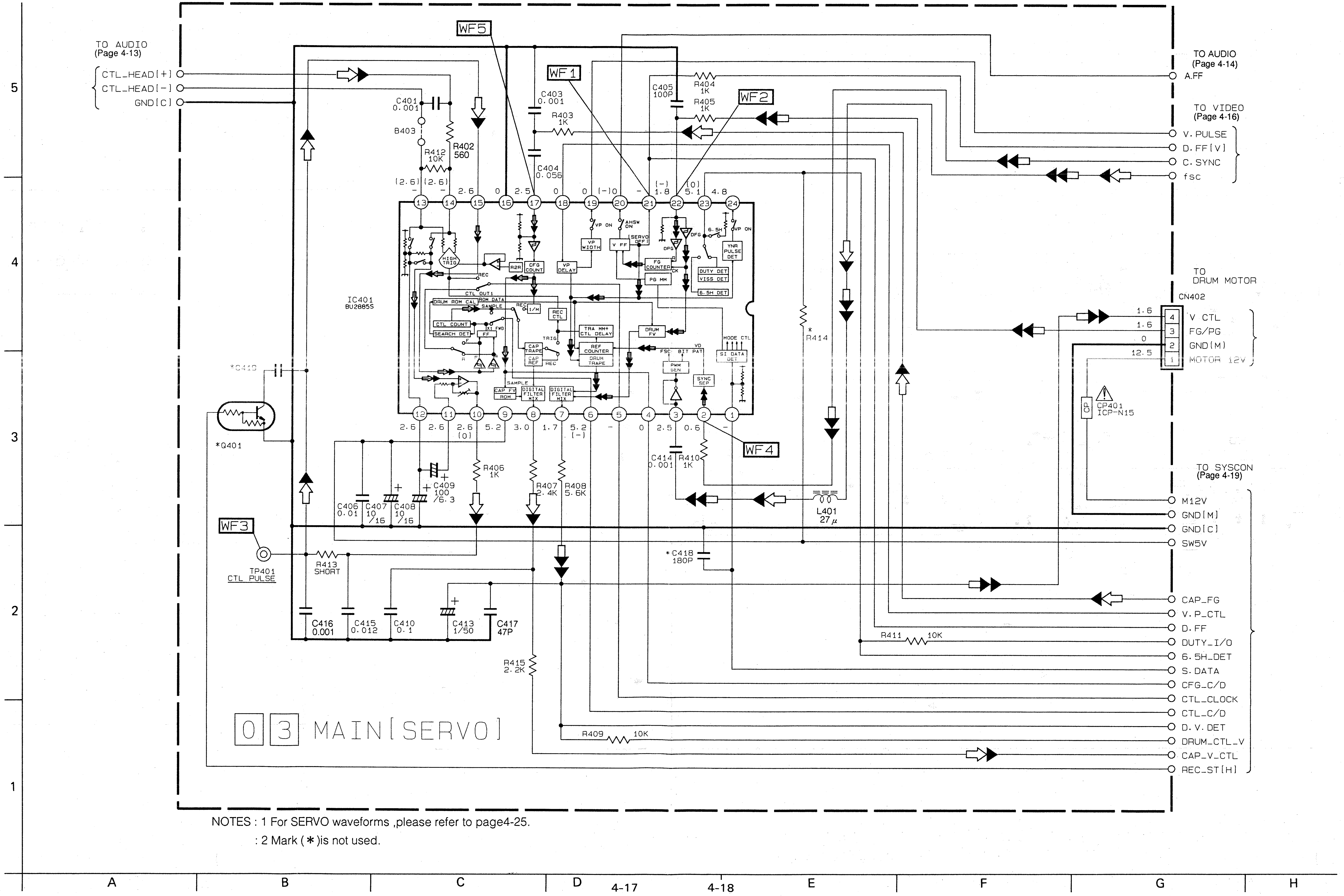
NOTES : 1.Mark(*)is not used.
2.For AUDIO waveforms, please refer to page4-25.

4.7 VIDEO SCHEMATIC DIAGRAM


03 MAIN(VIDEO)
88 SECAM COLOR (not used)
IC201 JCP0045B-1
IC202 TL8050P
IC351 M51645SP
IC352 XRA7105LS BA7105LS
X201 PEV80617
TO SW.REG (Page4-22)
SW5V
GND
SW12V
TO TERMINAL (Page4-23)
AV2_V_IN
FRONT_VIDEO
AV1_V_IN
LINE_VIDEO
PB_VIDEO
PAL/MESECHAM(L)
B/W(L)
VIDEO GND
GND
TO SERVO (Page4-18)
fsc
C. SYNC
V. PULSE
D. FF
TO AUDIO (Page4-14)
D. A. FF
A. REC_FM
A. PB_FM
TO PRE/REC CN2 (Page4-41) CN201
1 A. PB FM
2 A. REC FM
3 D. A. FF
4 H. REC ST(L)
5 VA SEL
6 AVG FM
7 REC COLOR
8 PB FM
9 REC FM
10 PB FM/COL
11 SP(L)
12 GND
TO PRE/REC CN3 (Page4-41) CN202
1 NTSC(L)
2 REC ST(L)
3 D. FF
4 SW5V
5 C. SYNC
6 HEAD SEL
7 A/M/S
8 COLOR ROT
9 REC(L)
10 PB SPE. (L)
11 SQ*
12 GND*
FROM/TO FLY ERASE *CN203
1 REC(L)
2 FLY ERS ON(L)
3 GND
4 SW12V
*JP201 *CN351
1 COL FOR DET
2 EE(L)
3 SW5V
4 C. SYNC
5 D. FF
6 SECAM(H)
7 PB FM/COL
8 REC COL IN
9 GND
10 PB COL IN
11 REC COL OUT
12 GND
13 PB COL OUT
14 B/W(L)
15 VIDEO IN
TO SYSCON (Page4-20)
A. MUTE(H)
VIDEO_DATA
VIDEO_CLK
MESECAM_DET
FRONT(H)
EE(L)
SECAM_DET
H. REC_ST(L)
VA_SEL
AVG_FM
SP(L)
NTSC(L)
REC_ST(L)
HEAD_SEL
A/M/S
PB_SPE(L)
SQ_ON(L)
REC(L)
FLY_ERS_ON(L)
WF1
WF2
WF3
WF4
WF5
WF6
WF7
WF8
WF9
WF10
WF11
WF12
WF13
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTES : 1. Mark(*)is not used.
2. For VIDEO waveforms, please refer to page4-25.

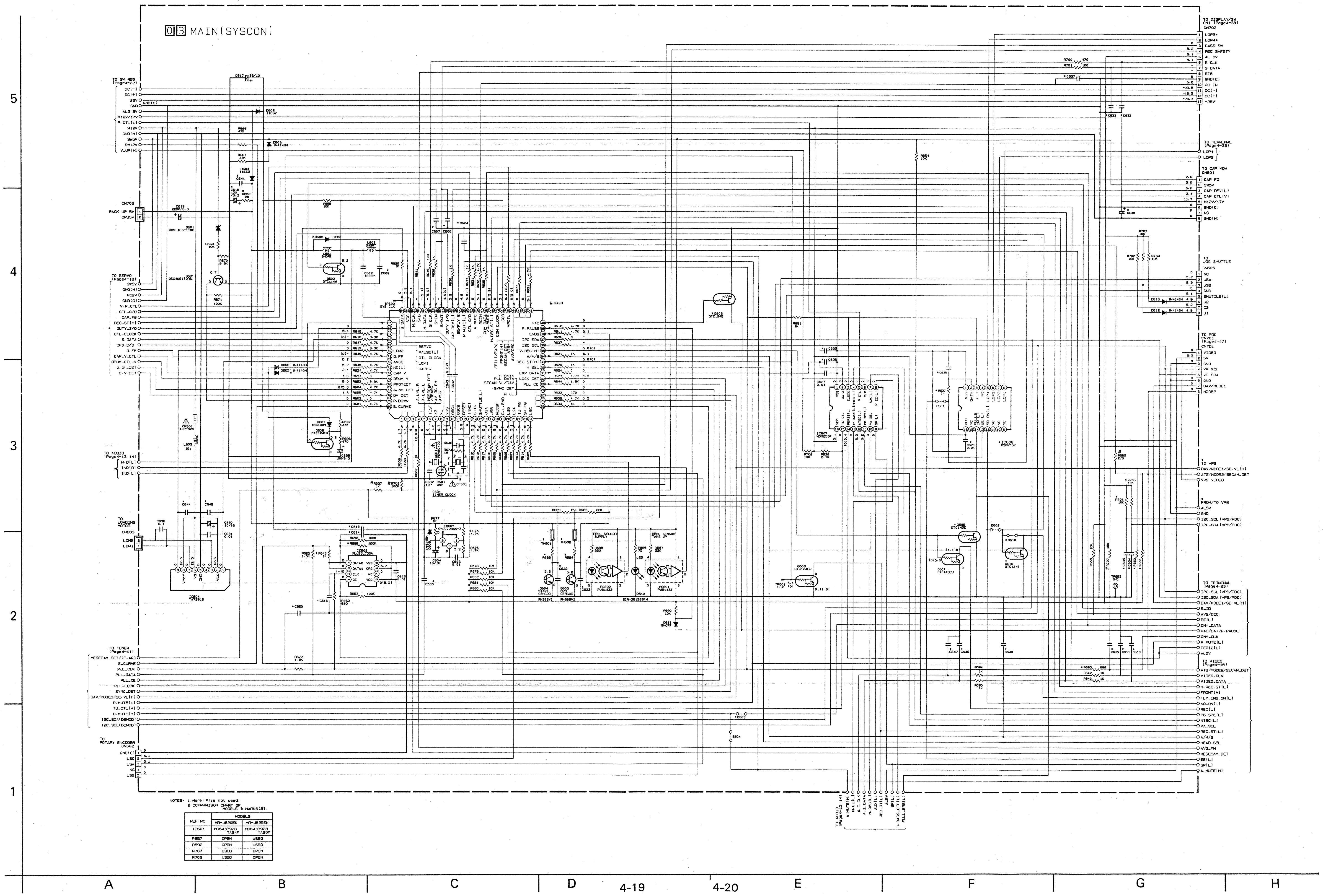
4.8 SERVO SCHEMATIC DIAGRAM


TO AUDIO
(Page 4-13)
CTL_HEAD[+]
CTL_HEAD[-]
GND[C]
WF5
WF1
WF2
WF3
WF4
C401
0.001
B403
R412
10K
R402
560
C403
0.001
R403
1K
C404
0.056
C405
100P
R404
1K
R405
1K
TO AUDIO
(Page 4-14)
A.FF
TO VIDEO
(Page 4-16)
V.PULSE
D.FF[V]
C.SYNC
fsc
IC401
BU2885S
HIGH TRIG
REC
R2R
CFG COUNT
VP DELAY
VP WIDTH
VP ON
AHSW ON
V FF
[SERVO OFF]
DFG
DPG
FG COUNTER
CK
PG MM
6.5H
YNR PULSE DET
DUTY DET
VISS DET
6.5H DET
CTL OUT1
DRUM ROM CAL
ROM DATA
SAMPLE
1/M
REC CTL
CTL COUNT
X1 FWD
SEARCH DET
FF
TRIG
CAP TRAPE
CAP REF
TRA MM+ CTL DELAY
REF COUNTER
DRUM TRAPE
DRUM FV
MODE CTL
VD
FSC
BIT PAT
PWM GEN
SI DATA DET
SYNC SEP
CAP FV ROM
DIGITAL FILTER MIX
DIGITAL FILTER MIX
(2.6)
(2.6)
2.6
0
2.5
0
0
(-)0
-
(-)
1.8
(0)
5.1
4.8
2.6
2.6
2.6
(0)
5.2
3.0
1.7
5.2
(-)
-
0
2.5
0.6
-
R414
TO DRUM MOTOR
CN402
1.6
1.6
0
12.5
V CTL
FG/PG
GND[M]
MOTOR 12V
CP401
ICP-N15
CP
*C419
*Q401
C406
0.01
C407
10
/16
C408
10
/16
C409
100
/6.3
R406
1K
R407
2.4K
R408
5.6K
C414
0.001
R410
1K
L401
27μ
*C418
180P
TO SYSCON
(Page 4-19)
M12V
GND[M]
GND[C]
SW5V
TP401
CTL PULSE
R413
SHORT
C416
0.001
C415
0.012
C410
0.1
C413
1/50
C417
47P
R415
2.2K
R411
10K
R409
10K
CAP_FG
V.P_CTL
D.FF
DUTY_I/O
6.5H_DET
S.DATA
CFG_C/D
CTL_CLOCK
CTL_C/D
D.V.DET
DRUM_CTL_V
CAP_V_CTL
REC_ST[H]
03 MAIN[SERVO]
1
2
3
4
5
A
B
C
D
E
F
G
H

NOTES : 1 For SERVO waveforms ,please refer to page4-25.

: 2 Mark (＊)is not used.

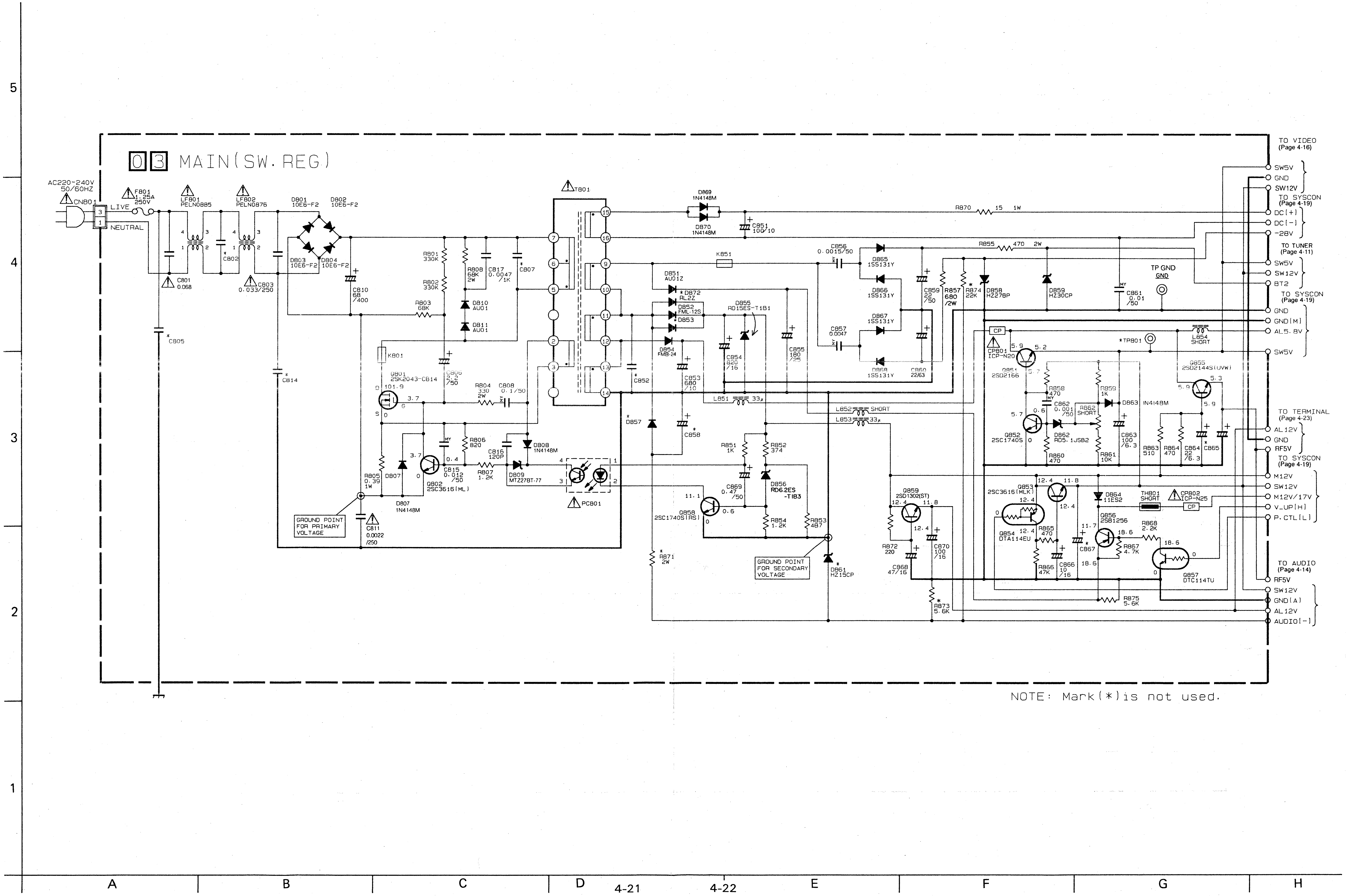
4.9 SYSTEM CONTROL SCHEMATIC DIAGRAM


03 MAIN(SYSCON)
TO SW.REG (Page4-22)
DC(-)
DC(+)
-28V
GND
GND(C)
AL5.8V
M12V/17V
P.CTL(L)
M12V
GND(M)
SW5V
SW12V
V_UP(H)
CN703
BACK UP 5V
CPU5V
C619 2200/6.3
D601 RD9.1ES-T1B2
Q601 2SC4081(QRS)
TO SERVO (Page4-18)
SW5V
GND(M)
M12V
GND(C)
V.P_CTL
CTL_C/D
CAP_FG
REC_ST(H)
DUTY_I/O
CTL_CLOCK
S.DATA
CFG_C/D
D.FF
CAP_V_CTL
DRUM_CTL_V
S.SH_DET
D.V.DET
CP601 ICP-N25
TO AUDIO (Page4-13,14)
TO LOADING MOTOR
CN603
LDM2
LDM1
IC604 TA7291S
TO TUNER (Page4-11)
MESECAM_DET/IF_AGC
S_CURVE
PLL_CLK
PLL_DATA
PLL_CE
PLL_LOCK
SYNC_DET
DAV/MODE1/SE.VL(H)
P.MUTE(L)
TU_CTL(H)
D.MUTE(H)
I2C_SDA(DEMOD)
I2C_SCL(DEMOD)
TO ROTARY ENCODER CN602
GND(C)
LSC
LSA
NC
LSB
#IC601
SERVO
PAUSE(L)
CTL CLOCK
LDM1
CAPFG
CAP V
DRUM V
PROTECT
6.5M DET
DV DET
P.DOWN
S.CURVE
RAE
R.PAUSE
ENDS
I2C SDA
I2C SCL
V.REC(H)
A/M/S
REC ST(H)
EXP DATA
PLL DATA
LOCK DET
SECAM VL/DAV
SYNC DET
PLL CE
X601 TIMER CLOCK
CF601
IC609 XL93LC56A
DATA2
DATA1
CLK
CE
VSS
ORG
NC
VCC
Q602 DTC114E
Q603 DTC124E
Q604 START SENSOR
Q605 END SENSOR
TH601
TH602
REEL SENSOR SUPPLY
REEL SENSOR TAKE UP
PS602 PU61433
PS601 PU61433
D610 SIR-381SB3FM
Q608 DTC124EU
Q607 DTC143EU
Q606 DTC143E
Q610 DTC124E
IC607 M50253P
IC608 M50253P
TO DISPLAY/SW CN1 (Page4-38)
CN702
1 LOP3*
2 LOP4*
3 CASS SW
4 REC SAFETY
5 AL 5V
6 S CLK
7 S DATA
8 STB
9 GND(C)
10 RC IN
11 DC(-)
12 DC(+)
13 -28V
TO TERMINAL (Page4-23)
LOP1
LOP2
TO CAP MDA
CN601
1 CAP FG
2 SW5V
3 CAP REV(L)
4 CAP CTL(V)
5 M12V/17V
6 GND(C)
7 NC
8 GND(M)
TO JOG SHUTTLE
CN605
1 NC
2 JSA
3 JSB
4 GND
5 SHUTTLE(L)
6 J2
7 C2
8 J1
D613 1N4148M
D612 1N4148M
TO PDC CN701 (Page4-47)
CN751
1 VIDEO
2 5V
3 GND
4 VP SCL
5 VP SDA
6 GND
7 DAV/MODE1
8 MODE2
* TO VPS
DAV/MODE1/SE.VL(H)
ATS/MODE2/SECAM_DET
VPS VIDEO
* FROM/TO VPS
AL5V
GND
I2C_SCL(VPS/PDC)
I2C_SDA(VPS/PDC)
TO TERMINAL (Page4-23)
I2C_SCL(VPS/PDC)
I2C_SDA(VPS/PDC)
DAV/MODE1/SE.VL(H)
S_ID
AV2/DEC.
EE(L)
CH+_DATA
RAE/SAT/R.PAUSE
CH+_CLK
P.MUTE(L)
PERI2(L)
AL5V
TO VIDEO (Page4-16)
ATS/MODE2/SECAM_DET
VIDEO_CLK
VIDEO_DATA
H.REC_ST(L)
FRONT(H)
FLY_ERS_ON(L)
SQ_ON(L)
REC(L)
PB_SPE(L)
NTSC(L)
VA_SEL
REC_ST(L)
A/M/S
HEAD_SEL
AVG_FM
MESECAM_DET
EE(L)
SP(L)
A.MUTE(H)
TO AUDIO (Page4-13,14)
A.MUTE(H)
N.EE(L)
A.I.CLK
A.I.DATA
N.REC(L)
AUX(L)
REC_ST(L)
AL5V
SP(L)
H.BASS_OFF(L)
FULL_ERS(L)
1
2
3
4
5
A
B
C
D
E
F
G
H

NOTES: 1. Mark(*) is not used.
2. COMPARISON CHART OF MODELS & MARKS(#).

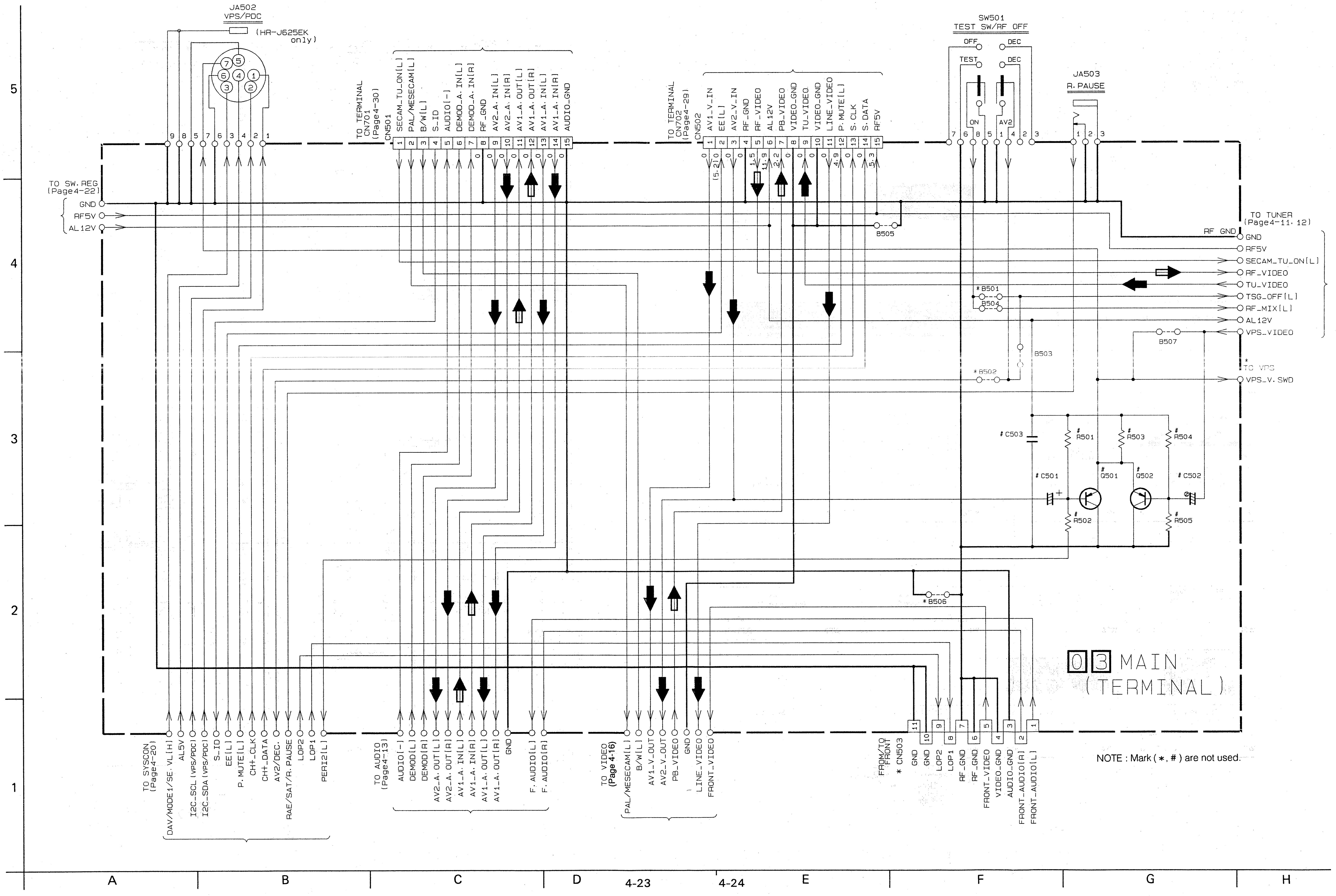
REF. NO	MODELS	
	HR-J620EK	HR-J625EK
IC601	HD6433928 TA24F	HD6433928 TA20F
R657	OPEN	USED
R692	OPEN	USED
R707	USED	OPEN
R709	USED	OPEN

4.10 SWITCHING REGULATOR SCHEMATIC DIAGRAM


03 MAIN(SW.REG)
AC220-240V 50/60HZ
CN801
LIVE
NEUTRAL
F801 1.25A 250V
LF801 PELN0885
LF802 PELN0876
C801 0.068
C802
C803 0.033/250
C805
C814
D801 10E6-F2
D802 10E6-F2
D803 10E6-F2
D804 10E6-F2
C810 68 /400
R801 330K
R802 330K
R803 68K
R808 68K 2W
C817 0.0047 /1K
C807
D810 AU01
D811 AU01
K801
Q801 2SK2043-CB14
101.9
3.7
C806 2.2 /50
R804 330 2W
C808 0.1/50
R805 0.39 1W
D807
D807 1N4148M
Q802 2SC3616(ML)
C815 0.012 /50
R806 820
C816 120P
R807 1.2K
D808 1N4148M
D809 MTZ27BT-77
PC801
C811 0.0022 /250
GROUND POINT FOR PRIMARY VOLTAGE
T801
D869 1N4148M
D870 1N4148M
C851 100/10
K851
D851 AU01Z
D872 RL2Z
D852 FML-12S
D853
D854 FMB-24
C852
C853 680 /10
C854 820 /16
D855 RD15ES-T1B1
C855 180 /25
D857
C858
L851 33μ
L852 SHORT
L853 33μ
R851 1K
R852 374
C869 0.47 /50
D856 RD6.2ES -T1B3
Q858 2SC1740S(RS)
11.1
0.6
R854 1.2K
R853 487
R871 2W
GROUND POINT FOR SECONDARY VOLTAGE
D861 HZ15CP
C856 0.0015/50
C857 0.0047
D865 1SS131Y
D866 1SS131Y
D867 1SS131Y
D868 1SS131Y
C859 22 /50
C860 22/63
R857 680 /2W
R874 22K
D858 HZ27BP
D859 HZ30CP
R870 15 1W
R855 470 2W
C861 0.01 /50
TP GND GND
CP
CP801 ICP-N20
Q851 2SD2166
5.9
5.2
5.7
TP801
L854 SHORT
Q855 2SD2144S(UVW)
5.3
R858 470
C862 0.001 /50
R859 1K
R862 SHORT
D863 1N4148M
Q852 2SC1740S
D862 RD5.1JSB2
R860 470
R861 10K
C863 100 /6.3
R863 510
R864 470
C864 22 /6.3
C865
Q859 2SD1302(ST)
12.4
11.8
R872 220
C868 47/16
C870 100 /16
R873 5.6K
Q853 2SC3616(MLK)
Q854 DTA114EU
R865 470
R866 47K
C866 10 /16
C867
D864 11ES2
Q856 2SB1256
18.6
R867 4.7K
R868 2.2K
TH801 SHORT
CP802 ICP-N25
Q857 DTC114TU
R875 5.6K
TO VIDEO (Page 4-16)
SW5V
GND
SW12V
TO SYSCON (Page 4-19)
DC(+)
DC(-)
-28V
TO TUNER (Page 4-11)
SW5V
SW12V
BT2
TO SYSCON (Page 4-19)
GND
GND(M)
AL5.8V
SW5V
TO TERMINAL (Page 4-23)
AL12V
GND
RF5V
TO SYSCON (Page 4-19)
M12V
SW12V
M12V/17V
V_UP(H)
P.CTL(L)
TO AUDIO (Page 4-14)
RF5V
SW12V
GND(A)
AL12V
AUDIO(-)
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE: Mark(*)is not used.

4.11 TERMINAL (MAIN) SCHEMATIC DIAGRAM


JA502
VPS/PDC
(HR-J625EK only)
TO TERMINAL CN701 (Page4-30)
CN501
SECAM_TU_ON[L]
PAL/MESECAM[L]
B/W[L]
S_ID
AUDIO[-]
DEMOD_A.IN[L]
DEMOD_A.IN[R]
RF_GND
AV2_A.IN[L]
AV2_A.IN[R]
AV1_A.OUT[L]
AV1_A.OUT[R]
AV1_A.IN[L]
AV1_A.IN[R]
AUDIO_GND
TO TERMINAL CN702 (Page4-29)
CN502
AV1_V_IN
EE[L]
AV2_V_IN
RF_GND
RF_VIDEO
AL12V
PB_VIDEO
VIDEO_GND
TU_VIDEO
VIDEO_GND
LINE_VIDEO
P.MUTE[L]
S.CLK
S.DATA
RF5V
SW501
TEST SW/RF OFF
OFF
DEC
TEST
DEC
ON
AV2
JA503
R.PAUSE
TO SW.REG (Page4-22)
GND
RF5V
AL12V
B505
TO TUNER (Page4-11,12)
RF GND
GND
RF5V
SECAM_TU_ON[L]
RF_VIDEO
TU_VIDEO
TSG_OFF[L]
RF_MIX[L]
AL12V
VPS_VIDEO
*B501
B504
B507
B503
*B502
* TO VPS
VPS_V.SWD
#C503
#R501
#R503
#R504
#C501
#Q501
#Q502
#C502
#R502
#R505
*B506
03 MAIN (TERMINAL)
TO SYSCON (Page4-20)
DAV/MODE1/SE.VL[H]
AL5V
I2C_SCL(VPS/PDC)
I2C_SDA(VPS/PDC)
S_ID
EE[L]
P.MUTE[L]
CH+_CLK
CH+_DATA
AV2/DEC.
RAE/SAT/R.PAUSE
LOP2
LOP1
PERI2[L]
TO AUDIO (Page4-13)
AUDIO[-]
DEMOD[L]
DEMOD[R]
AV2_A.OUT[L]
AV2_A.OUT[R]
AV1_A.IN[L]
AV1_A.IN[R]
AV1_A.OUT[L]
AV1_A.OUT[R]
GND
F.AUDIO[L]
F.AUDIO[R]
TO VIDEO (Page 4-16)
PAL/MESECAM[L]
B/W[L]
AV1_V_OUT
AV2_V_OUT
PB_VIDEO
GND
LINE_VIDEO
FRONT_VIDEO
FROM/TO FRONT
* CN503
GND
GND
LOP2
LOP1
RF_GND
RF_GND
FRONT_VIDEO
VIDEO_GND
AUDIO_GND
FRONT_AUDIO[R]
FRONT_AUDIO[L]
(5.2)
1.5
11.9
2.2
4.9
5.3
1
2
3
4
5
A
B
C
D
E
F
G
H

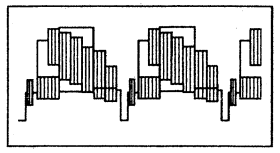
NOTE : Mark (*, #) are not used.

4.12 MAIN CIRCUIT BOARD

WAVEFORMS

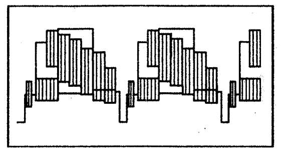
—VIDEO—

WF1 IC201-64



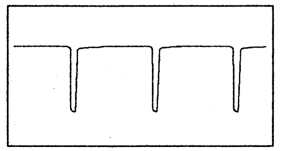
REC/PB2.0Vp-p
50mV/20μsec/DIV

WF2 IC201-60



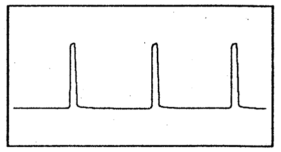
REC1.0Vp-p
50mV/20μsec/DIV

WF3 IC201-55



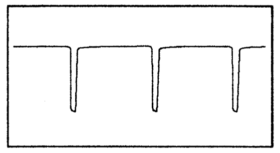
REC/PB4.8Vp-p
0.2V/5msec/DIV

WF4 IC201-52



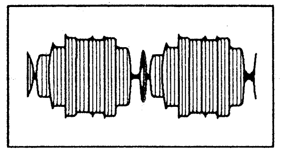
REC4.0Vp-p
0.1V/20μsec/DIV

WF5 IC201-51



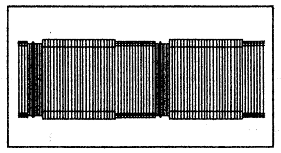
REC4.4Vp-p
0.1V/20μsec/DIV

WF6 IC201-46



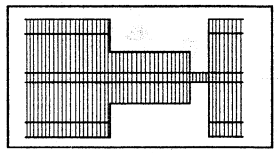
PB0.8Vp-p
20mV/20μsec/DIV

WF7 IC201-45



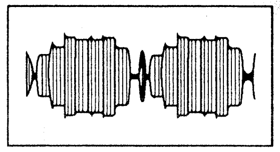
PB0.26Vp-p
10mV/5msec/DIV

WF8 IC201-43



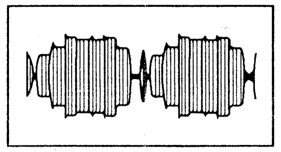
REC0.05Vp-p/PB0.12Vp-p
5mV/5msec/DIV

WF9 IC201-39



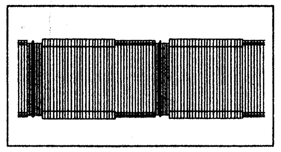
PB0.8Vp-p
20mV/20μsec/DIV

WF10 IC201-33



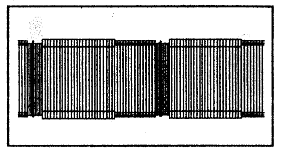
REC0.28Vp-p
10mV/20μsec/DIV

WF11 IC201-19



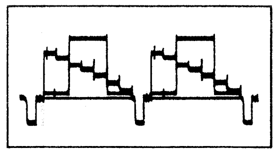
REC1.4Vp-p
50mV/5msec/DIV

WF12 IC201-18



PB0.32Vp-p
10mV/2msec/DIV

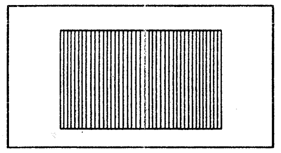
WF13 IC201-11



REC/PB1.0Vp-p
50mV/20μsec/DIV

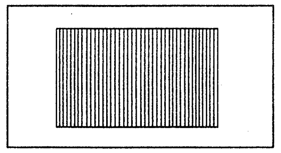
—AUDIO—

WF1 CN1-1



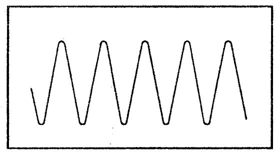
REC42.0Vp-p
2.0V/1msec/DIV

WF2 CN1-4



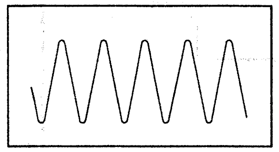
REC36.0Vp-p
2.0V/1msec/DIV

WF3 IC1-16



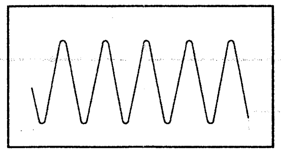
REC0.22Vp-p
10mV/1msec/DIV

WF4 IC1-22



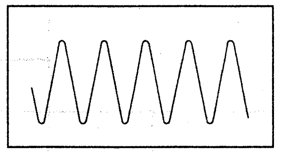
REC/PB2.2Vp-p
0.1V/1msec/DIV

WF5 IC101-43



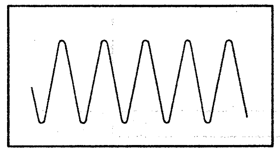
REC/PB2.2Vp-p
0.1V/1msec/DIV

WF6 IC101-45



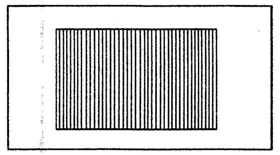
REC1.1Vp-p
50mV/1msec/DIV

WF7 IC101-1



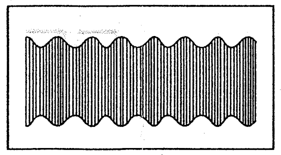
REC0.22Vp-p
10mV/1msec/DIV

WF8 IC101-13



REC0.68Vp-p
20mV/1msec/DIV

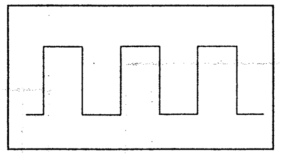
WF9 IC101-20



PB0.48Vp-p
20mV/0.5msec/DIV

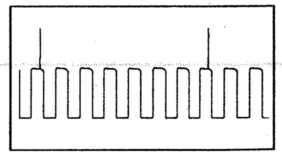
—SERVO—

WF1 IC401-21 D.FF



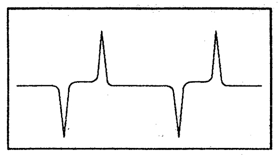
REC/PB5.2Vp-p
0.2V/10msec/DIV

WF2 IC401-22 D.PG/FG



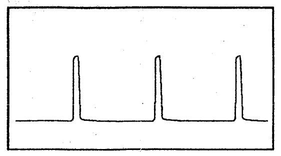
REC/PB4.2Vp-p
0.1V/5msec/DIV

WF3 TP401 CTL PULSE



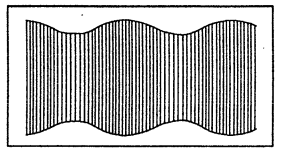
PB3.0Vp-p
0.1V/10msec/DIV

WF4 IC401-2 C.SYNC



REC4.0Vp-p
0.1V/20μsec/DIV

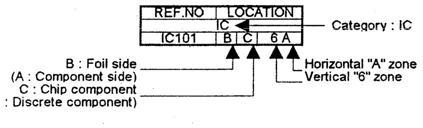
WF5 IC401-17

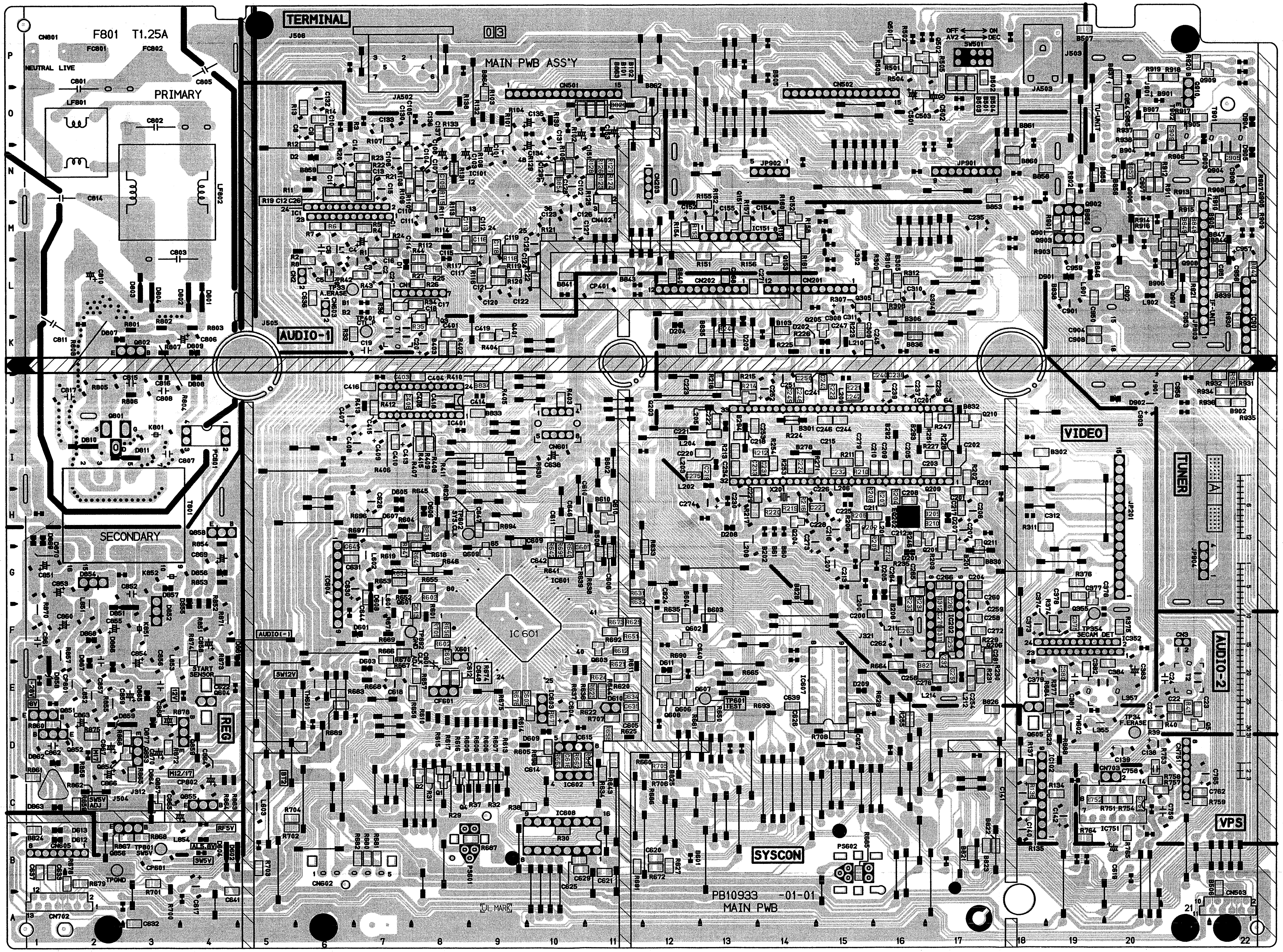


REC2.0Vp-p
50mV/10msec/DIV

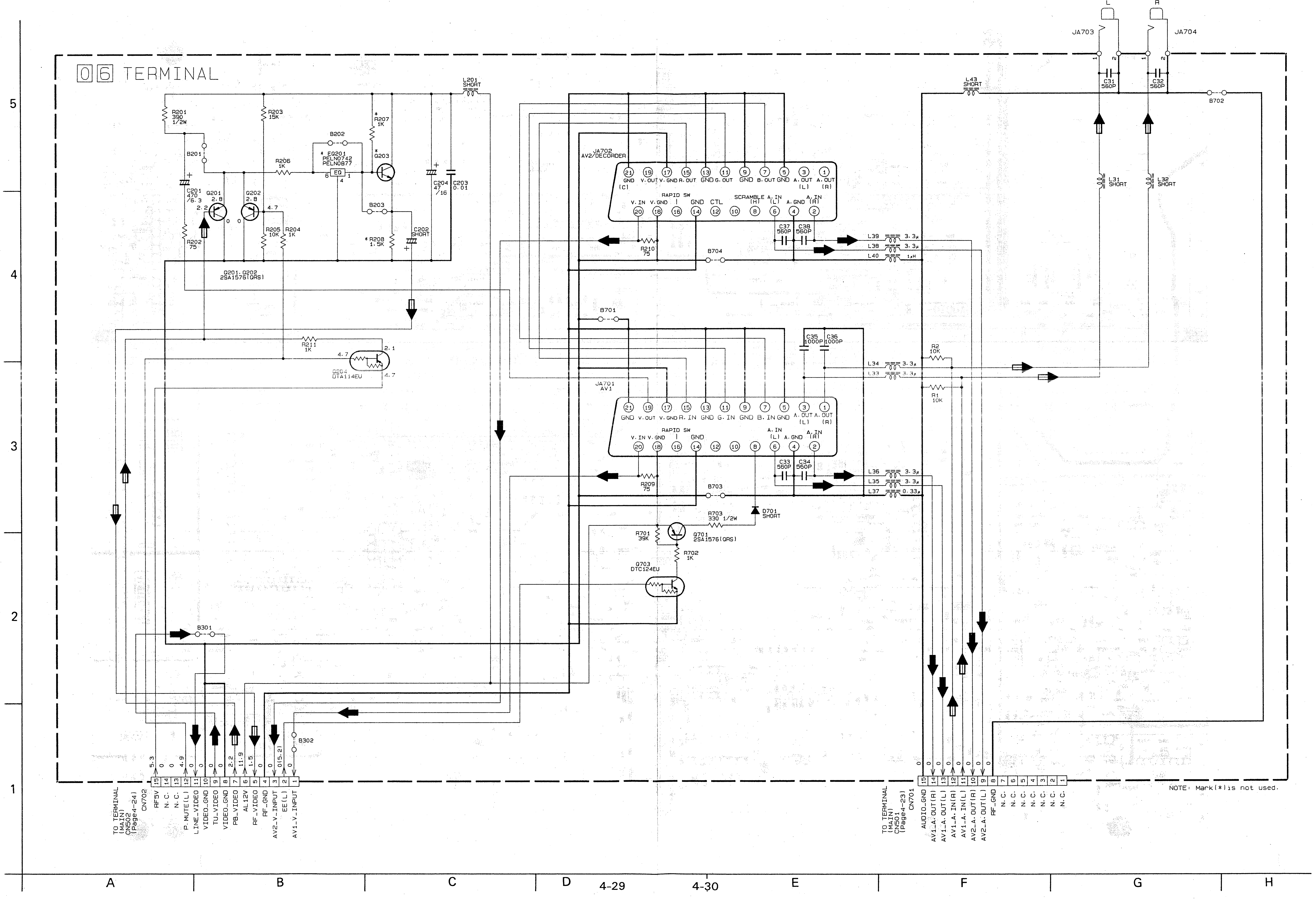
COMPONENT PARTS LOCATION GUIDE

REF.NO	LOCATION		
CAPACITOR			
C1	B	C	7M
C2	A	D	7L
C3	A	D	7L
C4	A	D	7M
C5	A	D	6L
C6	A	D	6M
C8	A	D	6O
C9	B	C	6O
C10	B	C	6O
C11	A	D	6N
C12	B	C	6N
C13	B	C	7N
C14	A	D	6N
C15	A	D	7N
C16	B	C	7M
C17	B	C	7L
C18	B	C	8K
C19	A	D	7K
C20	A	D	8K
C21	B	C	7L
C22	B	C	21E
C23	B	C	21E
C24	A	D	21E
C25	A	D	20E
C26	B	C	7N
C101	A	D	9N
C102	A	D	10N
C103	A	D	8N
C104	A	D	8N
C105	B	C	7N
C106	A	D	7N
C107	A	D	8N
C108	B	C	8N
C109	B	C	8N
C110	B	C	8M
C111	A	D	8M
C112	B	C	9M
C113	B	C	8M
C114	B	C	8M
C115	B	C	9M
C116	B	C	9M
C117	A	D	9L
C118	B	C	9M
C119	B	C	9M
C120	A	D	9L
C121	B	C	9L
C122	A	D	9L
C123	A	D	10M
C124	B	C	10L
C125	A	D	10M
C126	A	D	10M
C127	A	D	10M
C128	A	D	10N
C129	A	D	10N
C130	A	D	7O
C131	A	D	10N
C132	A	D	6O
C133	A	D	7O
C134	A	D	9N
C135	A	D	9O
C136	A	D	8O
C137	A	D	8N
C138	A	D	20D
C139	A	D	20D
C140	A	D	18C
C141	A	D	18C
C142	A	D	19C
C151	A	D	10O
C152	A	D	12M
C153	A	D	11O
C154	A	D	14M
C155	A	D	13M
C200	B	C	16F
C201	B	C	17H
C202	B	C	17I
C203	B	C	16I
C204	B	C	17G
C205	B	C	16I
C206	A	D	17H
C207	A	D	17H
C208	B	C	16H
C209	B	C	16I
C210	B	C	16I
C211	B	C	16H
C212	B	C	16H
C213	B	C	15G
C214	B	C	16G
C215	B	C	15I
C216	A	D	15H
C217	B	C	17H
C218	B	C	13I
C219	B	C	13I
C220	B	C	13I
C221	B	C	13I
C222	B	C	13J
C223	B	C	13J
C224	B	C	14I
C225	A	D	15H
C226	A	D	15H
C227	B	C	15H
C228	A	D	14H
C229	B	C	14H
C230	A	D	13H
C231	B	C	14I
C232	B	C	15I
C233	B	C	13I
C234	B	C	13I
C235	A	D	17M
C236	A	D	17J
C237	A	D	16J
C238	B	C	16J
C239	A	D	16J
C240	B	C	16J
C241	A	D	15J
C242	B	C	15J
C243	B	C	15J
C244	B	C	15J
C245	B	C	15K
C246	B	C	15J
C247	A	D	15K
C248	B	C	14J
C249	B	C	14J
C250	B	C	14J
C251	A	D	14J
C252	A	D	14J
C253	B	C	13J
C254	B	C	17E
C255	B	C	17E
C256	B	C	16E
C257	B	C	17F
C258	B	C	17F
C259	A	D	17F
C260	B	C	17G
C261	B	C	17F
C262	A	D	16F
C263	B	C	16F
C264	B	C	16G
C265	B	C	16G
C266	B	C	17G
C268	B	C	13L
C271	B	C	13L
C272	B	C	17F
C273	A	D	15G
C274	A	D	13H
C275	B	C	12I
C276	B	C	17E
C278	B	C	17F
C279	B	C	15I
C281	B	C	18F
C308	A	D	15L
C309	B	C	15K
C310	A	D	16L
C311	A	D	15K
C312	A	D	18H
C373	A	D	18F
C374	A	D	19F
C375	B	C	19F
C376	A	D	20F
C377	B	C	19G
C378	B	C	19G
C379	A	D	18E
C380	B	C	19E
C381	A	D	19E
C382	B	C	19E
C383	A	D	20E
C384	B	C	20E
C401	B	C	8K
C403	B	C	7J
C404	B	C	8J
C405	B	C	8J
C406	B	C	7J
C407	A	D	6J
C408	A	D	7I
C409	A	D	7I
C410	B	C	7I
C413	A	D	7I
C414	A	D	9J
C415	B	C	7J
C416	B	C	7J
C418	B	C	8J
C419	B	C	9K
C501	A	D	16P
C502	A	D	17O
C503	B	C	16O
C601	A	D	8E
C602	B	C	8F
C603	B	C	10E
C604	A	D	10E
C605	B	C	11E
C606	B	C	11G
C607	B	C	10G
C609	B	C	9H
C610	B	C	10H
C611	B	C	10H
C612	A	D	8E
C613	B	C	8F
C614	B	C	10D
C615	B	C	10D
C616	B	C	10D
C617	A	D	4B
C618	A	D	7E
C619	A	D	20B
C620	B	C	12B
C621	B	C	11B
C622	B	C	4E
C623	B	C	19D
C624	A	D	12F
C625	B	C	10B
C626	B	C	14E
C627	B	C	15D
C628	A	D	7H
C629	B	C	10B
C630	A	D	7G
C631	B	C	6G
C632	B	C	3A
C633	B	C	1B
C634	B	C	11E
C635	B	C	11E
C636	B	C	6L
C637	B	C	1B
C638	A	D	10I
C639	B	C	14E
C640	B	C	13E
C641	B	C	4B
C642	A	D	10G
C644	B	C	7G
C645	B	C	6G
C646	B	C	10H
C647	B	C	9H
C648	B	C	8E
C758	A	D	20D
C759	A	D	21C
C760	B	C	20C
C762	B	C	21C
C765	A	D	21C
C801	A	D	1O
C802	A	D	3O
C803	A	D	4M
C805	A	D	4P
C806	A	D	4K
C807	A	D	3I
C808	A	D	3J
C810	A	D	2L
C811	A	D	2K
C814	A	D	2N
C815	A	D	3J
C816	A	D	3J
C817	A	D	2J
C851	A	D	1G
C852	A	D	3G
C853	A	D	2G
C854	A	D	3E
C855	A	D	2F
C856	A	D	3E
C857	A	D	2E
C858	A	D	4F
C859	A	D	3E
C860	A	D	1F
C861	A	D	1F
C862	A	D	1D
C863	A	D	2D
C864	A	D	4C
C865	A	D	4C
C866	A	D	2D
C867	A	D	2D
C868	A	D	3D
C869	A	D	4G
C870	A	D	3D
C901	A	D	19L
C902	B	C	20L
C903	A	D	20J
C904	B	C	19K
C905	B	C	22N
C906	A	D	22N
C907	B	C	20N
C908	B	C	19K
C909	B	C	21O
C950	B	C	19L
C951	B	C	21L
C953	B	C	21L
C954	B	C	20O
C955	B	C	20O
C956	B	C	22L
C957	A	D	22M
C958	B	C	21J
C959	A	D	19L
CONNECTOR			
CN1	A	D	7L
CN2	A	D	6L
CN3	A	D	21F
CN201	A	D	15L
CN202	A	D	13L
CN203	A	D	12N
CN402	A	D	11M
CN501	A	D	9O
CN502	A	D	14O
CN503	A	D	22A
CN601	A	D	10J
CN602	A	D	6B
CN603	A	D	6L
CN605	A	D	2B
CN702	A	D	2A
CN703	A	D	20C
CN751	A	D	21C
CN801	A	D	1P
CP			
CP401	A	D	11L
CP601	A	D	3B
CP801	A	D	2E
CP802	A	D	4C
DIODE			
D1	A	D	7M
D2	A	D	6N
D201	A	D	16G
D202	A	D	15K
D203	A	D	13L
D204	A	D	12K
D205	A	D	16G
D207	A	D	17H
D208	A	D	13H
D209	A	D	15E
D601	A	D	7F
D602	A	D	5B
D603	A	D	7E
D604	A	D	4B
D605	A	D	7H
D606	A	D	8H
D607	A	D	7H
D608	A	D	7F
D609	A	D	10D
D610	A	D	11E
D611	A	D	12E
D612	A	D	2B
D613	A	D	2C
D801	A	D	4L
D802	A	D	4L
D803	A	D	3L
D804	A	D	3L
D807	A	D	2K
D808	A	D	4J
D809	A	D	4K
D810	A	D	2I
D811	A	D	3I
D851	A	D	3F
D852	A	D	3F
D854	A	D	2G
D855	A	D	4G
D856	A	D	4G
D857	A	D	3G
D858	A	D	1F
D859	A	D	3D
D862	A	D	2D
D863	A	D	2C
D864	A	D	3C
D865	A	D	3E
D866	A	D	2F
D867	A	D	2F
D868	A	D	2F
D869	A	D	1H
D870	A	D	1H
D877	A	D	3E
D901	A	D	19L
D902	A	D	20J
D903	A	D	21O
D904	A	D	22O
D905	A	D	22O
FUSE			
F801	A	D	3P
IC			
IC1	A	D	7M
IC101	B	C	9N
IC102	A	D	18B
IC151	A	D	13M
IC201	A	D	17I
IC202	A	D	17F
IC352	A	D	20F
IC401	A	D	8J
IC601	B	C	9F
IC602	A	D	11D
IC603	A	D	10E
IC604	A	D	6H
IC607	A	D	14D
IC608	A	D	11B
IC751	A	D	20C
IC901	A	D	22K
COIL			
L1	A	D	6M
L200	A	D	16F
L201	A	D	16H
L202	A	D	13I
L203	A	D	13I
L204	A	D	13I
L205	A	D	13I
L206	A	D	15H
L207	A	D	15G
L208	A	D	13G
L209	A	D	15J
L210	A	D	15K
L211	A	D	16F
L212	A	D	17E
L214	A	D	16E
L302	A	D	15L
L355	A	D	19D
L357	A	D	19E
L601	A	D	7F
L602	A	D	7G
L603	A	D	5C
L851	A	D	2F
L852	A	D	2E
L853	A	D	4E
L854	A	D	4B
L901	A	D	19L
L902	A	D	20L
TRANSISTOR			
Q1	B	C	8C
Q2	B	C	8D
Q3	B	C	8K
Q4	B	C	8C
Q5	B	C	21D
Q151	B	C	13M
Q152	B	C	14M
Q153	B	C	14L
Q201	B	C	16H
Q202	B	C	15H
Q203	B	C	13J
Q204	B	C	14H
Q205	B	C	15K
Q206	B	C	17F
Q209	B	C	17H
Q210	B	C	17J
Q211	B	C	17G
Q304	B	C	16L
Q305	B	C	16L
Q355	B	C	19G
Q401	B	C	9K
Q501	B	C	16P
Q502	B	C	16P
Q601	B	C	7F
Q602	B	C	12F
Q603	B	C	11F
Q604	A	D	4E
Q605	A	D	18E
Q606	B	C	12E
Q607	B	C	12E
Q608	B	C	12E
Q609	B	C	9G
Q610	B	C	11H
Q801	A	D	3J
Q802	A	D	3K
Q851	A	D	1E
Q852	A	D	1D
Q853	A	D	3D
Q854	B	C	3D
Q855	A	D	4C
Q856	A	D	2C
Q857	B	C	3C
Q858	A	D	4H
Q859	A	D	4D
Q901	B	C	19M
Q902	A	D	19M
Q903	A	D	19M
Q904	B	C	21N
Q905	B	C	22N
Q906	B	C	20N
Q907	B	C	21M
Q908	B	C	21M
Q909	B	C	21P
Q910	A	D	21O
RESISTOR			
R1	B	C	7M
R2	A	D	5M
R3	A	D	6O
R4	B	C	7M
R5	B	C	6M
R6	B	C	6M
R7	B	C	6M
R8	B	C	6L
R9	B	C	6L
R11	A	D	6N
R12	B	C	6N
R13	B	C	6O
R14	B	C	6O
R19	B	C	6N
R20	B	C	6N
R21	B	C	7N
R22	B	C	7N
R23	B	C	7N
R24	B	C	7M
R25	B	C	8L
R26	B	C	8L
R27	B	C	8L
R29	B	C	8D
R30	B	C	10C
R31	B	C	8D
R32	B	C	9D
R33	B	C	7K
R34	B	C	8L
R35	B	C	8K
R36	B	C	7L
R37	B	C	9D
R38	B	C	10C
R39	B	C	20D
R40	B	C	21E
R41	B	C	21E
R42	B	C	7L
R43	B	C	7L
R44	B	C	8M
R101	A	D	9O
R102	B	C	10N
R103	A	D	9O
R104	B	C	9O
R105	B	C	10N
R106	B	C	9O
R107	B	C	7O
R108	B	C	7N
R109	B	C	8N
R110	B	C	8N
R111	B	C	8M
R112	A	D	8M
R113	B	C	8M
R114	B	C	8M
R115	B	C	8N
R116	B	C	9L
R117	B	C	9L
R118	B	C	9M
R119	B	C	9L
R120	B	C	9L
R121	B	C	10M
R122	B	C	10L
R123	B	C	11N
R124	B	C	11N
R125	B	C	11N
R126	B	C	11N
R127	B	C	11N
R128	B	C	11N
R129	B	C	10N
R130	A	D	10O
R131	B	C	8N
R132	A	D	9O
R133	B	C	8O
R134	B	C	19C
R135	B	C	18C
R136	B	C	18C
R137	B	C	18D
R138	A	D	8O
R151	B	C	13M
R152	B	C	13M
R153	B	C	12M
R154	B	C	12M
R155	B	C	13M
R156	B	C	13M
R157	B	C	13M
R158	B	C	14M
R159	B	C	14M
R160	B	C	14M
R161	B	C	14M
R201	B	C	17H
R202	B	C	17I
R203	B	C	17H
R204	B	C	16H
R205	B	C	15H
R206	B	C	15H
R207	B	C	16H
R208	B	C	15H
R209	B	C	16H
R210	B	C	15I
R211	B	C	15I
R212	B	C	14I
R213	B	C	13I
R214	B	C	13J
R215	B	C	13J
R216	B	C	14H
R217	B	C	13H
R218	B	C	13J
R219	B	C	14H
R220	B	C	14H
R221	B	C	15J
R222	B	C	15J
R223	A	D	15K
R224	B	C	14J
R225	A	D	14K
R226	B	C	14K
R227	B	C	17I
R228	B	C	17I
R229	B	C	17F
R230	B	C	17E
R231	B	C	17E
R232	B	C	17F
R233	B	C	16F
R234	B	C	16F
R235	B	C	16G
R244	B	C	13K
R246	B	C	16H
R247	B	C	17J
R251	B	C	16J
R253	B	C	14I
R254	B	C	14I
R255	B	C	16D
R271	B	C	14I
R307	B	C	15L
R308	B	C	16L
R309	B	C	16L
R310	B	C	16L
R311	B	C	19H
R312	B	C	16L
R374	B	C	19F
R375	B	C	20F
R376	B	C	19G
R377	B	C	19E
R402	B	C	8K
R403	B	C	10J
R404	B	C	9K
R405	B	C	9J
R406	B	C	7J
R407	B	C	8J
R408	B	C	8J
R409	B	C	8I
R410	B	C	9J
R411	B	C	9I
R412	B	C	7J
R413	A	D	7J
R415	B	C	8I
R501	B	C	16P
R502	B	C	16P
R503	B	C	16P
R504	B	C	16P
R505	B	C	17P
R601	A	D	8F
R602	B	C	8F
R603	B	C	8G
R604	A	D	8H
R605	A	D	10D
R606	A	D	9D
R607	A	D	9D
R608	A	D	9D
R609	A	D	8D
R610	A	D	8D
R611	A	D	11F
R612	B	C	11F
R613	A	D	9D
R614	A	D	9D
R615	A	D	8D
R616	A	D	8D
R617	A	D	8D
R618	B	C	8G
R619	A	D	7G
R620	B	C	11E
R621	B	C	11E
R622	B	C	11E
R623	B	C	11E
R624	B	C	11E
R625	A	D	11D
R626	B	C	9H
R627	B	C	12B
R628	B	C	15E
R629	B	C	11F
R630	B	C	9I
R631	B	C	11G
R632	B	C	11G
R633	B	C	12G
R634	B	C	11D
R635	B	C	12F
R636	A	D	11F
R637	A	D	10F
R638	B	C	11G
R639	B	C	10G
R640	B	C	10G
R641	B	C	10G
R642	B	C	10G
R643	B	C	11D
R644	B	C	11E
R645	B	C	8H
R646	B	C	8G
R647	B	C	7G
R649	B	C	8G
R650	B	C	13E
R651	B	C	11F
R652	A	D	7G
R653	B	C	7G
R654	B	C	7G
R655	B	C	8G
R656	B	C	8F
R657	B	C	8E
R658	B	C	11D
R659	B	C	8E
R660	A	D	12D
R661	B	C	13E
R662	B	C	10D
R663	B	C	10D
R664	B	C	16E
R665	A	D	13E
R666	B	C	7F
R667	B	C	7E
R668	A	D	7E
R669	A	D	7F
R670	B	C	7F
R671	A	D	7G
R672	B	C	12B
R673	B	C	11F
R674	B	C	8E
R675	B	C	10E
R676	B	C	9E
R677	B	C	10E
R678	B	C	2B
R679	B	C	2B
R680	B	C	7B
R681	B	C	7B
R682	B	C	7B
R683	B	C	6E
R684	B	C	19E
R685	B	C	15B
R686	A	D	12D
R687	B	C	9B
R688	B	C	19D
R689	B	C	6E
R690	B	C	12E
R691	B	C	11B
R692	B	C	11F
R693	A	D	14E
R694	B	C	9H
R695	B	C	10G
R696	B	C	7H
R697	B	C	7H
R698	B	C	10D
R699	B	C	11D
R700	A	D	3A
R701	B	C	3B
R702	B	C	5C
R703	B	C	5B
R704	B	C	5C
R705	B	C	12D
R706	B	C	12D
R707	B	C	11E
R708	B	C	15D
R709	B	C	8F
R751	B	C	20C
R752	B	C	19C
R753	B	C	20D
R754	B	C	20C
R757	B	C	21C
R758	B	C	20C
R759	B	C	21C
R764	B	C	19B
R765	B	C	20B
R801	A	D	3K
R802	A	D	3K
R803	A	D	4K
R804	A	D	4J
R805	A	D	2J
R806	A	D	3J
R807	A	D	3K
R808	A	D	2J
R851	A	D	4F
R852	A	D	4F
R853	A	D	4G
R854	A	D	4H
R855	A	D	2E
R857	A	D	1F
R858	A	D	2C
R859	B	C	2C
R860	B	C	1D
R861	B	C	1C
R862	A	D	1C
R863	A	D	4C
R864	A	D	4C
R865	B	C	3D
R866	B	C	3D
R867	B	C	3B
R868	B	C	3B
R870	A	D	1F
R871	A	D	4F
R872	B	C	3D
R873	A	D	4E
R874	B	C	4F
R875	B	C	2D
R878	B	C	3D
R901	B	C	19M
R902	B	C	19N
R903	B	C	19M
R905	B	C	21O
R906	B	C	21N
R907	B	C	22N
R908	B	C	22N
R909	B	C	22M
R910	B	C	22M
R911	B	C	20N
R912	B	C	20N
R913	B	C	21N
R914	B	C	21M
R915	B	C	21M
R916	B	C	21M
R917	B	C	21O
R918	B	C	21P
R919	B	C	20P
R920	B	C	21P
R921	B	C	21L
R930	B	C	22K
R931	B	C	22J
R932	B	C	22J
R933	B	C	22J
R934	B	C	22J
R935	B	C	22J
R936	B	C	22J
R937	B	C	20O
R938	B	C	20N
TEST POINT			
TP33	A	D	7L
TP34	A	D	20D
TP354	A	D	19F
TP401	A	D	7K
TP601	A	D	13E
TP602	A	D	9H
TP692	A	D	8F
TP801	A	D	3B
TPGND	A	D	2B
OTHERS			
TU-UNIT	A	D	19P
X201	A	D	14H
X601	A	D	8F
CF601	A	D	8E
IF-UNIT	A	D	21N
J901	A	D	20O
JA502	A	D	8P
JA503	A	D	18P
JP201	A	D	20G
JP901	A	D	18N
JP902	A	D	14N
K801	A	D	3I
K851	A	D	3F
K852	A	D	4G
LF801	A	D	2N
LF802	A	D	3M
PC801	A	D	4J
T1	A	D	7K
T2	A	D	21E
T801	A	D	2I
T901	A	D	22N
T902	A	D	21N
TH601	A	D	6E
TH602	A	D	19D
TH801	A	D	3C



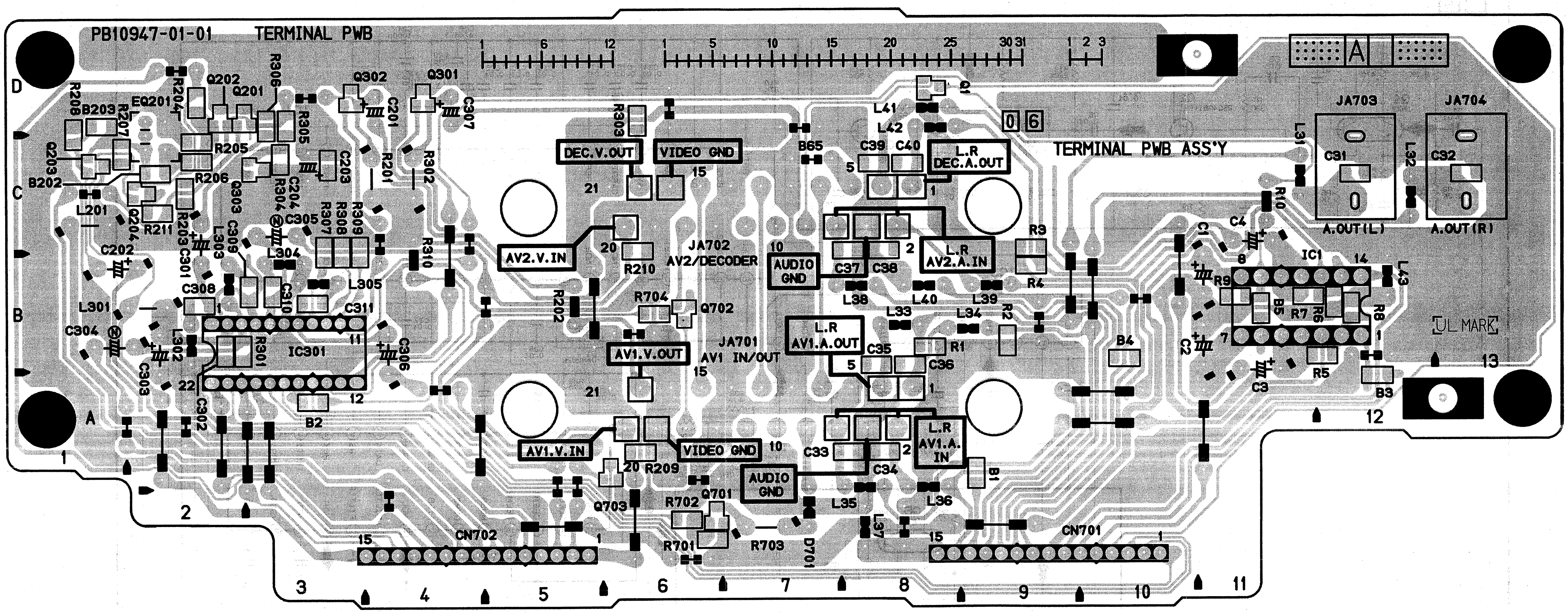

F801 T1.25A
NEUTRAL LIVE
PRIMARY
SECONDARY
TERMINAL
MAIN PWB ASS'Y
AUDIO-1
AUDIO-2
VIDEO
TUNER
VPS
SYSCON
REG
IC 601
START SENSOR
A.ERASE
F.ERASE
SECAM DET
PB10933 -01-01
MAIN PWB

4.13 TERMINAL SCHEMATIC DIAGRAM


06 TERMINAL
AUDIO OUT
L
R
JA703
JA704
C31 560P
C32 560P
L43 SHORT
B702
L31 SHORT
L32 SHORT
L201 SHORT
R201 390 1/2W
R203 15K
*R207 1K
B202
*EQ201 PELN0742 PELN0877
EQ
*Q203
B201
R206 1K
C201 470 /6.3
Q201 2.8
Q202 2.8
2.2
4.7
C204 47 /16
C203 0.01
B203
R205 10K
R204 1K
*R208 1.5K
C202 SHORT
R202 75
Q201, Q202 2SA1576(QRS)
R211 1K
Q204 DTA114EU
2.1
JA702 AV2/DECORDER
GND (C)
V.OUT
V.GND
R.OUT
GND
G.OUT
B.OUT
A.OUT (L)
A.OUT (R)
RAPID SW
V.IN
CTL
SCRAMBLE (H)
A.IN (L)
A.GND
A.IN (R)
R210 75
B704
C37 560P
C38 560P
L39 3.3μ
L38 3.3μ
L40 1μH
B701
JA701 AV1
R.IN
G.IN
B.IN
C35 1000P
C36 1000P
L34 3.3μ
L33 3.3μ
R2 10K
R1 10K
R209 75
B703
C33 560P
C34 560P
L36 3.3μ
L35 3.3μ
L37 0.33μ
D701 SHORT
R703 330 1/2W
R701 39K
Q701 2SA1576(QRS)
R702 1K
Q703 DTC124EU
B301
B302
TO TERMINAL (MAIN) CN502 (Page4-24)
CN702
RF5V
N.C.
P.MUTE(L)
LINE_VIDEO
VIDEO_GND
TU_VIDEO
PB_VIDEO
AL12V
RF_VIDEO
RF_GND
AV2_V_INPUT
EE(L)
AV1_V_INPUT
5.3
4.9
11.9
1.5
0(5.2)
TO TERMINAL (MAIN) CN501 (Page4-23)
CN701
AUDIO_GND
AV1_A.OUT(R)
AV1_A.OUT(L)
AV1_A.IN(R)
AV1_A.IN(L)
AV2_A.OUT(R)
AV2_A.OUT(L)
A
B
C
D
E
F
G
H
1
2
3
4
5

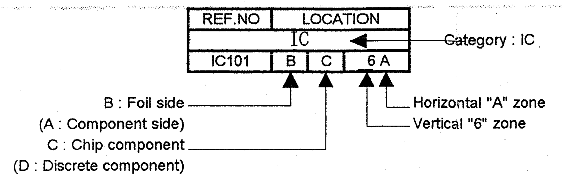
NOTE: Mark(*)is not used.

4.14 TERMINAL CIRCUIT BOARD

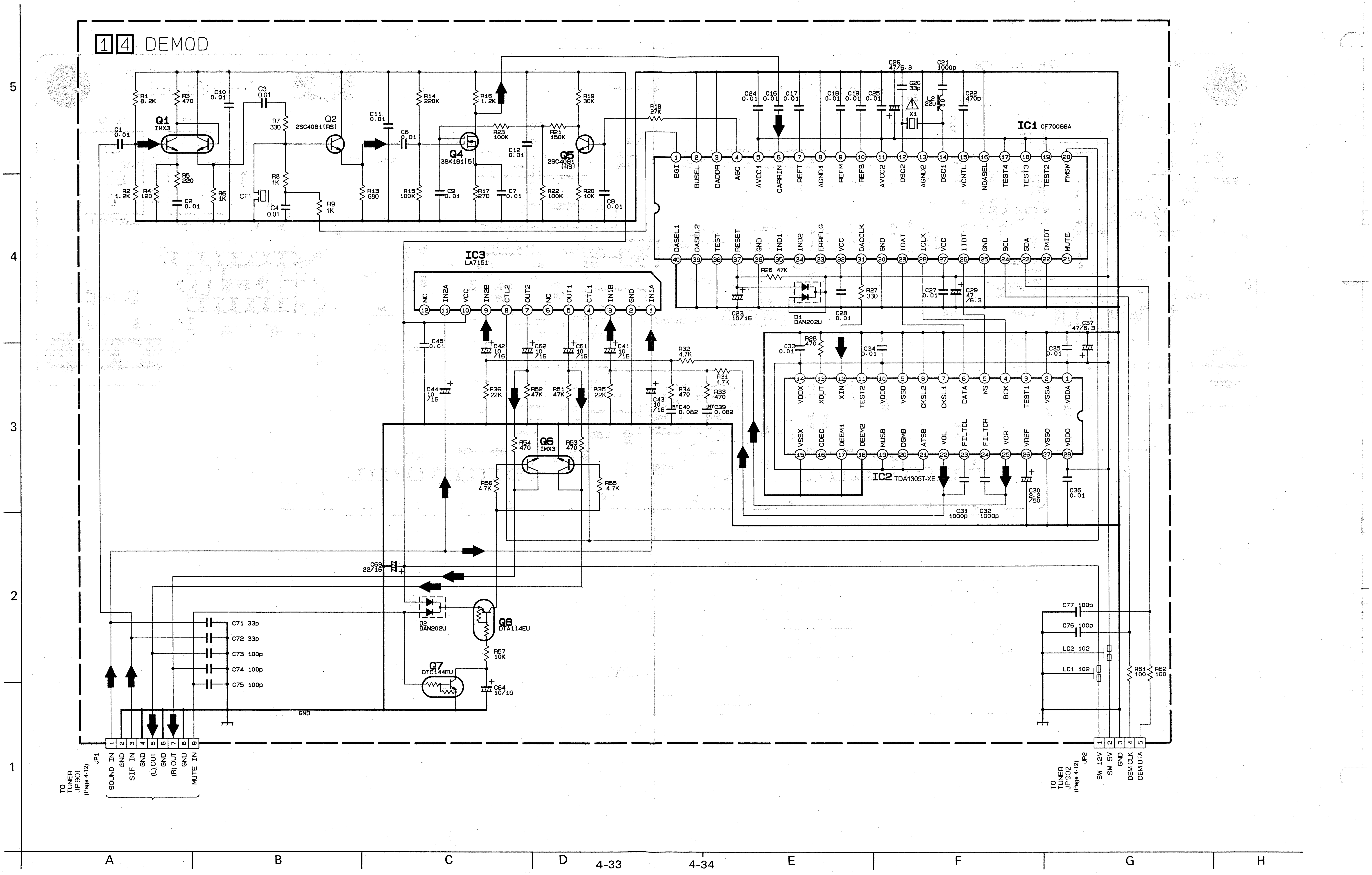

PB10947-01-01 TERMINAL PWB
TERMINAL PWB ASS'Y
DEC.V.OUT
VIDEO GND
AV2.V.IN
JA702
AV2/DECODER
AUDIO GND
L.R DEC.A.OUT
L.R AV2.A.IN
AV1.V.OUT
JA701
AV1 IN/OUT
L.R AV1.A.OUT
AV1.V.IN
VIDEO GND
AUDIO GND
L.R AV1.A. IN
JA703
JA704
A.OUT(L)
A.OUT(R)
UL MARK
IC1
IC301
CN702
CN701
Q201
Q202
Q203
Q204
Q301
Q302
Q303
Q701
Q702
Q703
Q1
D701
A
B
C
D
1
2
3
4
5
6
7
8
9
10
11
12
13

COMPONENT PARTS LOCATION GUIDE

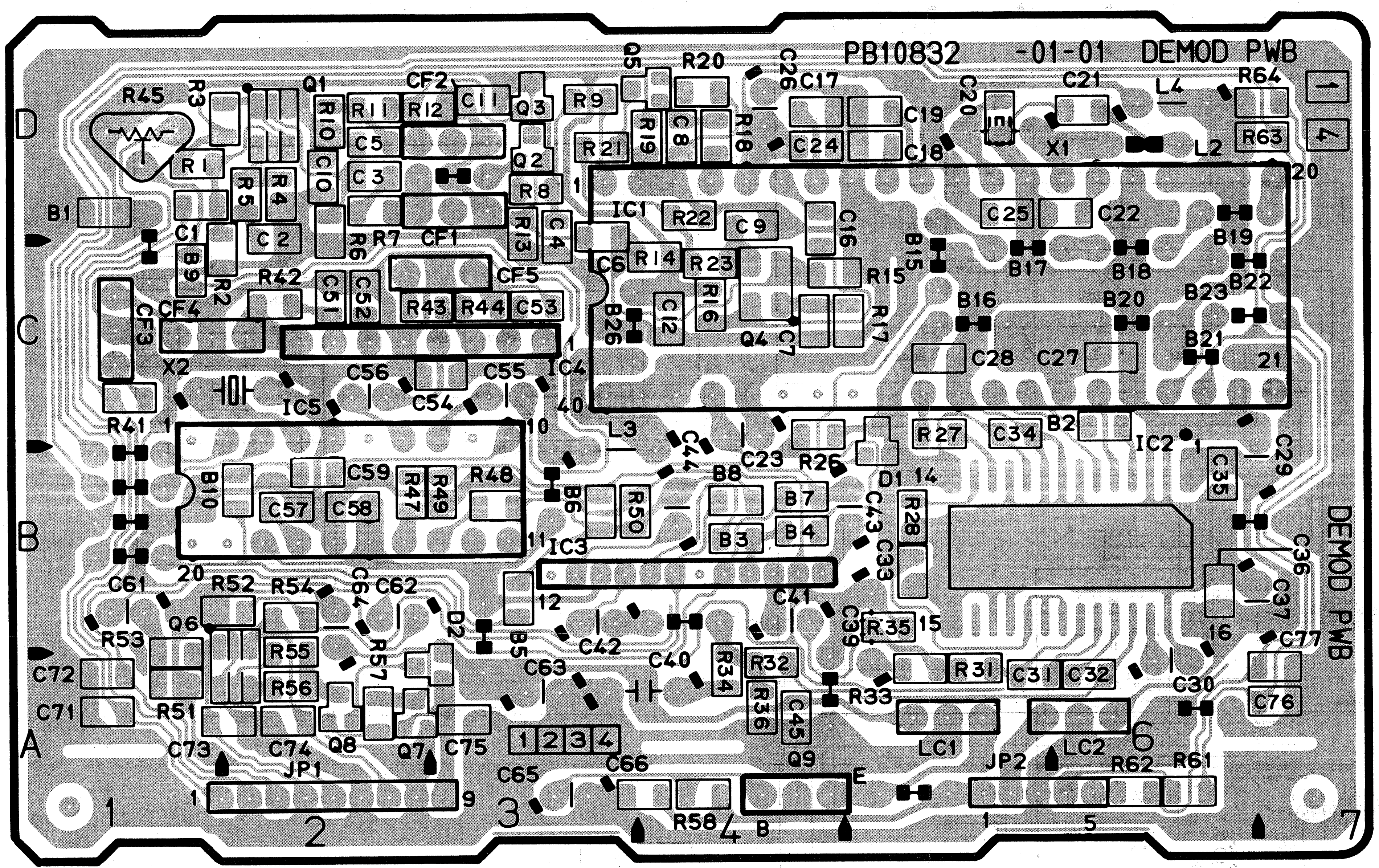
REF.NO	LOCATION		
CAPACTOR			
C1	A	D	11B
C2	A	D	11B
C3	A	D	11A
C4	A	D	11C
C31	B	C	12C
C32	B	C	13C
C33	B	C	8A
C34	B	C	8A
C35	B	C	8B
C36	B	C	8B
C37	B	C	8C
C38	B	C	8C
C39	B	C	8C
C40	B	C	8C
C201	A	D	4D
C202	A	D	2B
C203	B	C	3C
C204	A	D	3C
C301	A	D	2C
C302	B	C	2B
C303	A	D	2B
C304	A	D	2B
C305	A	D	3C
C306	A	D	4B
C307	A	D	4D
C308	B	C	2B
C309	B	C	3B
C310	B	C	3B
C311	B	C	3B
CONNECTOR			
CN701	A	D	10A
CN702	A	D	5A
DIODE			
D701	A	D	7A
IC			
IC1	A	D	12B
IC301	A	D	2B
COIL			
L31	A	D	11C
L32	A	D	12C
L33	A	D	8B
L34	A	D	9B
L35	A	D	8A
L36	A	D	8A
L37	A	D	8A
L38	A	D	8B
L39	A	D	9B
L40	A	D	8B
L41	A	D	8D
L42	A	D	8D
L43	A	D	12B
L201	A	D	1C
L301	A	D	2B
L302	A	D	2B
L303	A	D	2B
L304	A	D	3B
L305	A	D	3B
TRANSISTOR			
Q1	B	C	8D
Q201	B	C	3D
Q202	B	C	2D
Q203	B	C	1C
Q204	B	C	2C
Q301	B	C	4D
Q302	B	C	3D
Q303	B	C	3C
Q701	B	C	6A
Q702	B	C	6B
Q703	B	C	6A
RESISTOR			
R1	B	C	8B
R2	B	C	9B
R3	B	C	9C
R4	B	C	9B
R5	B	C	12B
R6	B	C	12B
R7	B	C	11B
R8	B	C	12B
R9	B	C	11B
R10	A	D	11C
R201	A	D	4C
R202	A	D	5B
R203	B	C	2C
R204	B	C	2D
R205	B	C	2C
R206	B	C	2C
R207	B	C	1C
R208	B	C	1D
R209	B	C	6A
R210	B	C	6C
R211	B	C	2C
R301	B	C	2B
R302	A	D	4C
R303	B	C	6D
R304	B	C	3C
R305	B	C	3D
R306	B	C	3D
R307	B	C	3C
R308	B	C	3C
R309	B	C	3C
R310	A	D	4B
R701	B	C	6A
R702	B	C	6A
R703	A	D	7A
R704	B	C	6B
OTHERS			
JA701	A	D	7A
JA702	A	D	7C
JA703	A	D	12C
JA704	A	D	13C


REF.NO
LOCATION
IC
IC101
B
C
6 A
Category : IC
B : Foil side
(A : Component side)
C : Chip component
(D : Discrete component)
Horizontal "A" zone
Vertical "6" zone

4.15 DEMODULATOR SCHEMATIC DIAGRAM


1 4 DEMOD
IC1 CF70088A
IC2 TDA1305T-XE
IC3 LA7151
Q1 IMX3
Q2 2SC4081(RS)
Q4 3SK181(5)
Q5 2SC4081 (RS)
Q6 IMX3
Q7 DTC144EU
Q8 DTA114EU
D1 DAN202U
D2 DAN202U
X1
L2 22U
CF1
R1 8.2K
R2 1.2K
R3 470
R4 120
R5 220
R6 1K
R7 330
R8 1K
R9 1K
R13 680
R14 220K
R15 100K
R16 1.2K
R17 270
R18 27K
R19 30K
R20 10K
R21 150K
R22 100K
R23 100K
R26 47K
R27 330
R28 470
R31 4.7K
R32 4.7K
R33 470
R34 470
R35 22K
R36 22K
R51 47K
R52 47K
R53 470
R54 470
R55 4.7K
R56 4.7K
R57 10K
R61 100
R62 100
C1 0.01
C2 0.01
C3 0.01
C4 0.01
C6 0.01
C7 0.01
C8 0.01
C9 0.01
C10 0.01
C11 0.01
C12 0.01
C16 0.01
C17 0.01
C18 0.01
C19 0.01
C20 33p
C21 1000p
C22 470p
C23 10/16
C24 0.01
C25 0.01
C26 47/6.3
C27 0.01
C28 0.01
C29 47/6.3
C30 2.2/50
C31 1000p
C32 1000p
C33 0.01
C34 0.01
C35 0.01
C36 0.01
C37 47/6.3
MYC39 0.082
MYC40 0.082
C41 10/16
C42 10/16
C43 10/16
C44 10/16
C45 0.01
C61 10/16
C62 10/16
C63 22/16
C64 10/16
C71 33p
C72 33p
C73 100p
C74 100p
C75 100p
C76 100p
C77 100p
LC1 102
LC2 102
1 BGI
2 BUSEL
3 DADDR
4 AGC
5 AVCC1
6 CARRIN
7 REFT
8 AGND1
9 REFM
10 REFB
11 AVCC2
12 OSC2
13 AGND2
14 OSC1
15 VCNTL
16 NDASEL
17 TEST4
18 TEST3
19 TEST2
20 FMSW
40 DASEL1
39 DASEL2
38 TEST
37 RESET
36 GND
35 IND1
34 IND2
33 ERRFLG
32 VCC
31 DACCLK
30 GND
29 IDAT
28 ICLK
27 VCC
26 IIDT
25 GND
24 SCL
23 SDA
22 IMIDT
21 MUTE
12 NC
11 IN2A
10 VCC
9 IN2B
8 CTL2
7 OUT2
6 NC
5 OUT1
4 CTL1
3 IN1B
2 GND
1 IN1A
14 VDDX
13 XOUT
12 XIN
11 TEST2
10 VDDD
9 VSSD
8 CKSL2
7 CKSL1
6 DATA
5 WS
4 BCK
3 TEST1
2 VSSA
1 VDDA
15 VSSX
16 CDEC
17 DEEM1
18 DEEM2
19 MUSB
20 DSMB
21 ATSB
22 VOL
23 FILTCL
24 FILTCR
25 VOR
26 VREF
27 VSSO
28 VDDO
GND
JP1
1 SOUND IN
2 GND
3 SIF IN
4 GND
5 (L) OUT
6 GND
7 (R) OUT
8 GND
9 MUTE IN
TO TUNER JP901 (Page 4-12)
JP2
1 SW 12V
2 SW 5V
3 GND
4 DEM CLK
5 DEM DTA
TO TUNER JP902 (Page 4-12)
5
4
3
2
1
A
B
C
D
E
F
G
H

4.16 DEMODULATOR CIRCUIT BOARD


PB10832 -01-01 DEMOD PWB
DEMOD PWB
A
B
C
D
1
2
3
4
5
6
7
R45
R3
Q1
CF2
R10
R11
R12
C11
Q3
R9
Q5
R20
C26
C17
C20
C21
L4
R64
C19
C18
C24
X1
L2
R63
R1
R4
R5
C5
C3
C10
Q2
R8
R21
R19
C8
R18
B1
C1
C2
R6
R7
CF1
R13
C4
IC1
R22
C9
C16
B15
C25
C22
B19
B9
R2
R42
CF4
CF3
C51
C52
CF5
R43
R44
C53
C6
R14
R23
R16
C12
B26
Q4
C7
R17
R15
B17
B18
B16
B20
B23
B22
B21
C28
C27
X2
C56
C55
IC4
IC5
C54
R41
L3
C44
C23
R26
R27
C34
B2
IC2
C35
C29
B10
C59
R47
R49
R48
B6
R50
B8
B7
B3
B4
D1
C43
C33
R28
C57
C58
IC3
C36
C37
C61
R52
R54
C64
C62
Q6
D2
B5
C42
C41
C39
R35
C77
R53
R55
C63
C40
R34
R32
R31
C31
C32
C30
C72
R57
R56
R36
C45
R33
C76
C71
R51
LC1
LC2
C73
C74
Q8
Q7
C75
Q9
JP2
R62
R61
JP1
C65
C66
E
R58
B
1
9
20
21
40
10
11
12
14
15
16

MAIN COMPONENT PARTS
LOCATION GUIDE

REF. No.	LOCATION
IC	
IC1	4C
IC2	6B
IC3	4B
IC4	3C
IC5	2B

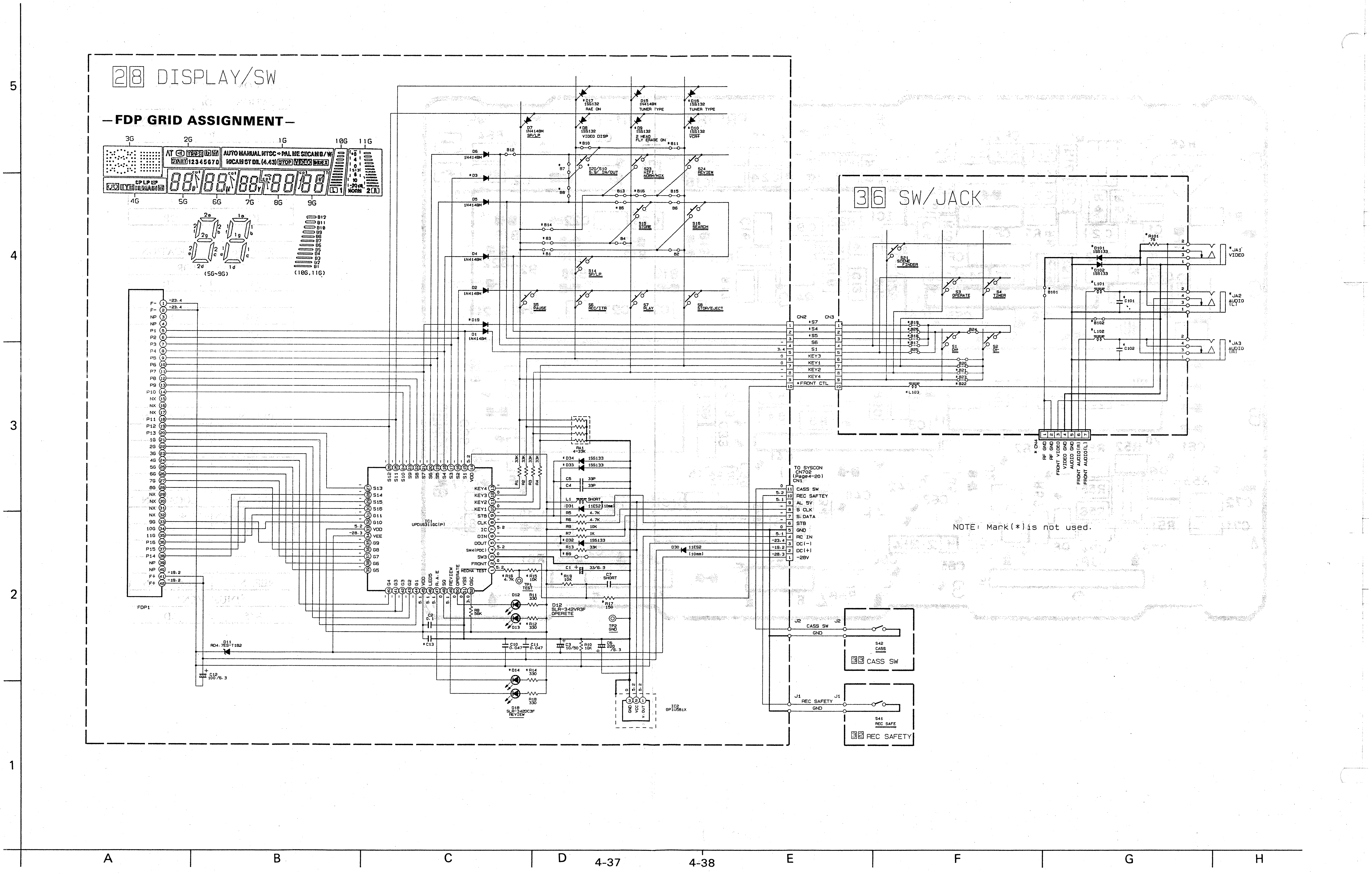
REF. No.	LOCATION
TRANSISTOR	
Q1	2D
Q3	3D
Q4	4C
Q5	4D
Q6	2A
Q7	2A
Q8	2A

REF. No.	LOCATION
DIODE	
D1	5B
D2	3A

REF. No.	LOCATION
CONNECTOR	
JP1	2A
JP2	5A

REF. No.	LOCATION
ADJUSTMENT	
R45	1D

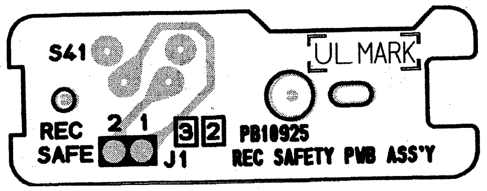
4.17 DISPLAY/SW & SW/JACK SCHEMATIC DIAGRAMS


28 DISPLAY/SW
—FDP GRID ASSIGNMENT—
3G
2G
1G
10G
11G
4G
5G
6G
7G
8G
9G
(5G~9G)
(10G,11G)
FDP1
IC1
UPD16311GC(P)
D11
RD4.7ES-T1B2
C12
100/6.3
D12
SLR-342VR3F
OPERETE
D16
SLR-342DC3F
REVIEW
IC2
GP1U58IX
RA1
4-33K
TP1
TEST
TP2
GND
S5
PAUSE
S6
REC/ITR
S7
PLAY
S8
STOP/EJECT
S14
SP/LP
S15
STORE
S16
SEARCH
S20/S10
S.G/ IN/OUT
S23
HIFI NORM/MIX
S24
REVIEW
D17
1SS132
RAE ON
D15
1N4148M
TUNER TYPE
D18
1SS132
TUNER TYPE
D7
1N4148M
SP/LP
D8
1SS132
VIDEO DISP
D9
1SS132
2 HEAD FLY ERASE ON
D10
1SS132
VCR+
TO SYSCON CN702 (Page4-20)
CN1
CASS SW
REC SAFTEY
AL 5V
S CLK
S DATA
STB
GND
RC IN
DC(-)
DC(+)
-28V
CN2
CN3
S7
S4
S5
S6
S1
KEY3
KEY1
KEY2
KEY4
FRONT CTL
J2
CASS SW
GND
S42
CASS
33 CASS SW
J1
REC SAFETY
GND
S41
REC SAFE
32 REC SAFETY
36 SW/JACK
S21
SCENE FINDER
S3
OPERATE
S4
TIMER
S1
CH+
S2
CH-
R101
75
D101
1SS133
D102
1SS133
L101
L102
L103
C101
C102
B101
B102
JA1
VIDEO
JA2
AUDIO (L)
JA3
AUDIO (R)
CN4
RF GND
RF GND
FRONT VIDEO
VIDEO GND
AUDIO GND
FRONT AUDIO(R)
FRONT AUDIO(L)
A
B
C
D
E
F
G
H
1
2
3
4
5

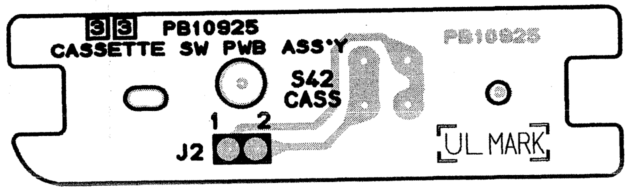
NOTE: Mark(*)is not used.

4.18 DISPLAY/SW, SW/JACK, REC SAFETY, CASSETTE SW AND A/C HEAD CIRCUIT BOARDS

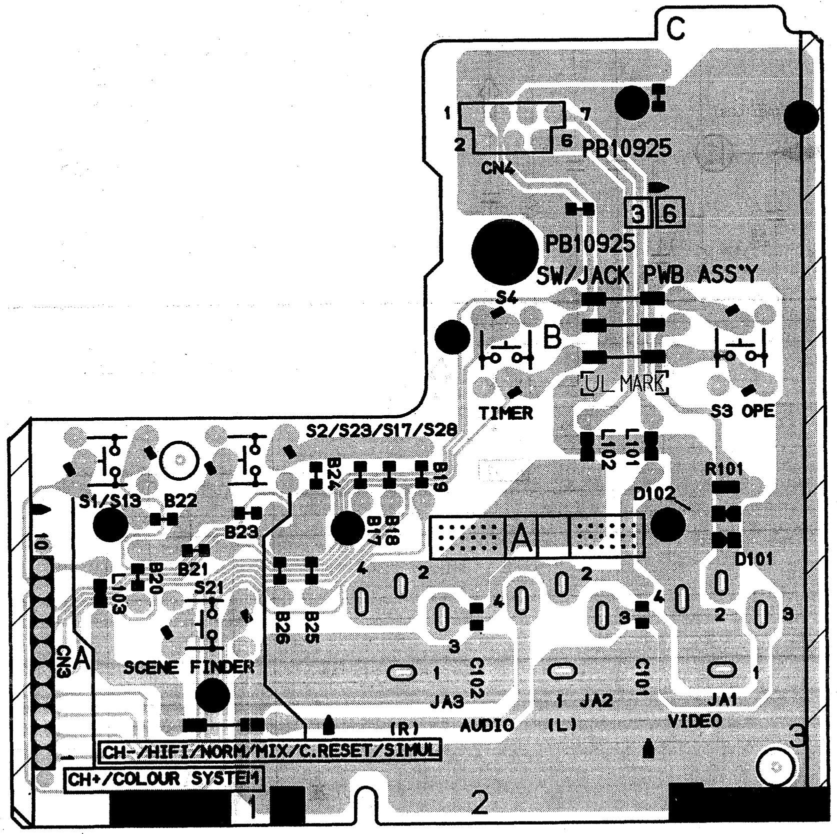
–REC SAFETY–


S41
UL MARK
REC SAFE
2 1
J1
3 2
PB10925
REC SAFETY PWB ASS'Y

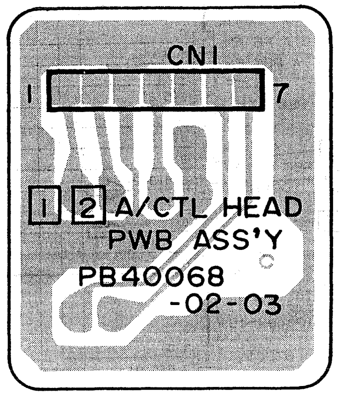
–CASSETTE SW–


3 3 PB10925
CASSETTE SW PWB ASS'Y
PB10925
S42 CASS
1 2
J2
UL MARK

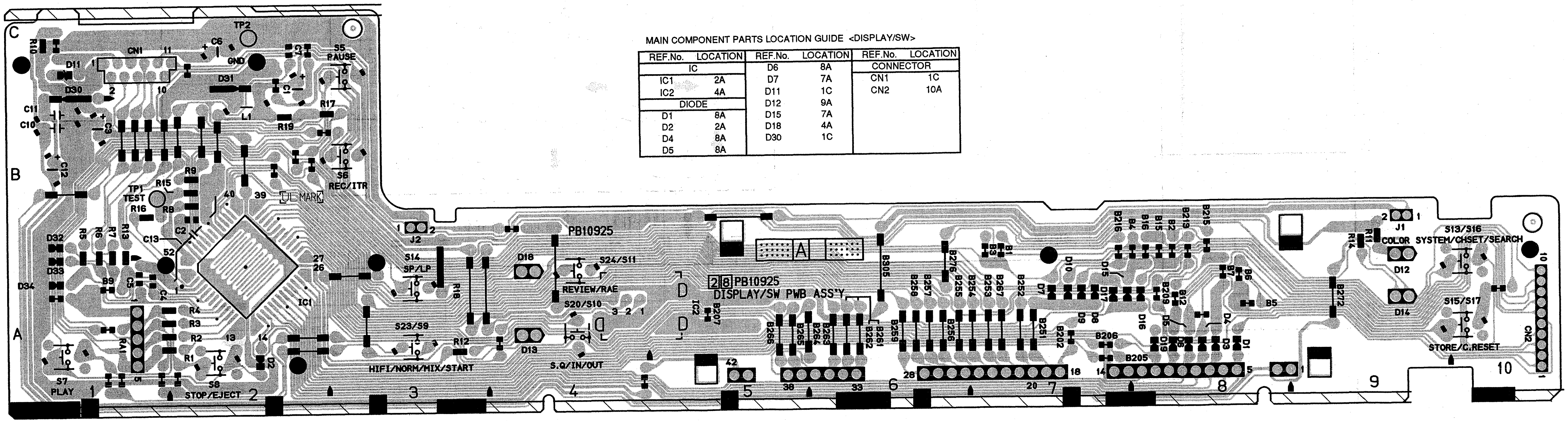
–SW/JACK–


C
1
7
2
6
PB10925
CN4
3 6
PB10925
SW/JACK PWB ASS'Y
S4
B
UL MARK
TIMER
S3 OPE
S2/S23/S17/S28
R101
D102
D101
S1/S13
B22
B23
B21
S21
B20
L103
B24
B19
B18
B17
B26
B25
L101
L102
A
10
CN3
A
SCENE FINDER
C102
C101
JA3
JA2
JA1
(R)
AUDIO
(L)
VIDEO
CH–/HIFI/NORM/MIX/C.RESET/SIMUL
CH+/COLOUR SYSTEM
1
2
3

–A/C HEAD–


CN1
1
7
1 2 A/CTL HEAD
PWB ASS'Y
PB40068
-02-03

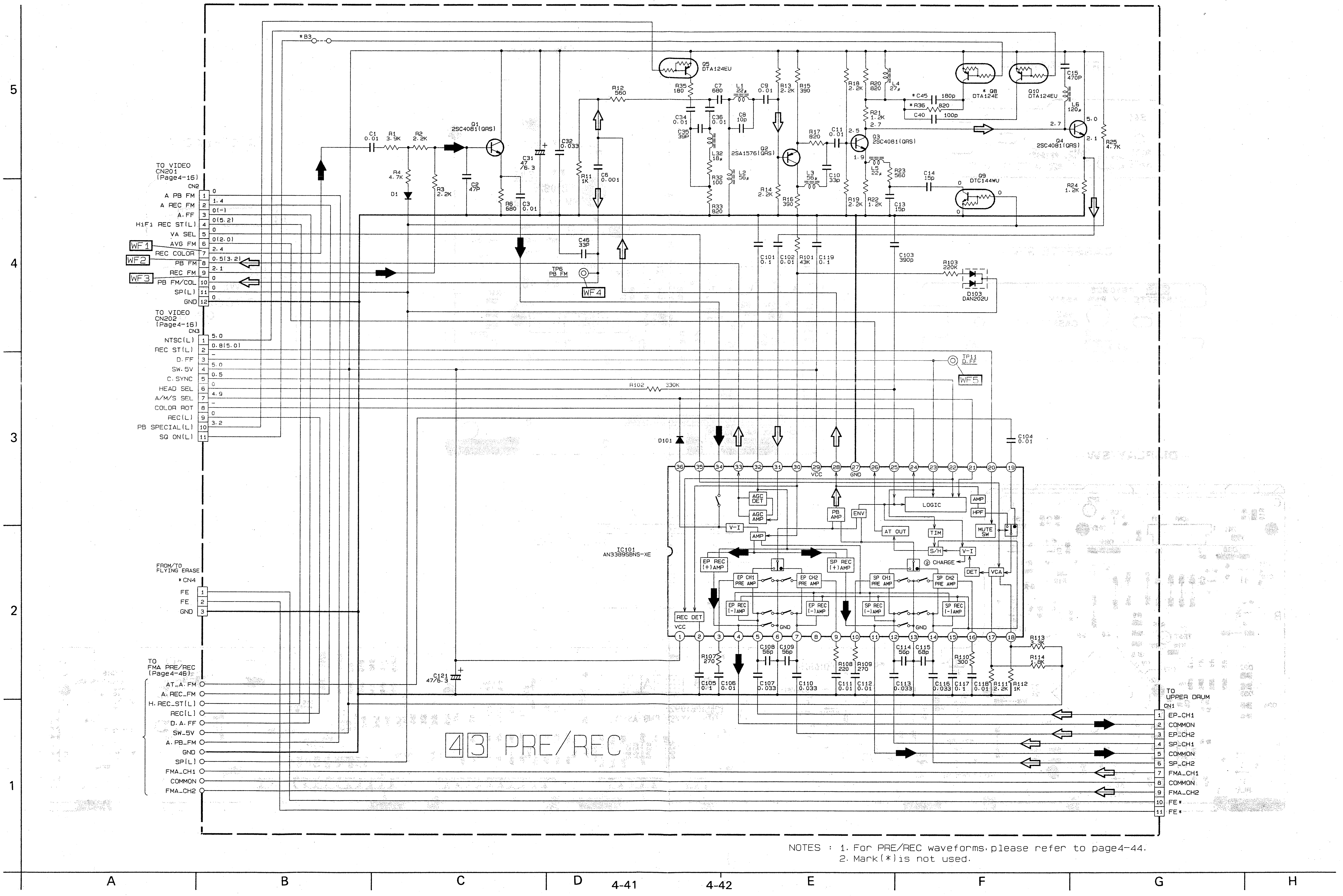
–DISPLAY/SW–


C
B
A
R10
CN1
11
D11
D30
2
10
C6
GND
TP2
C7
S5 PAUSE
D31
C1
L1
R17
R19
C11
C10
C3
C12
S6 REC/ITR
TP1 TEST
R15
R9
R16
R8
40
39
UL MARK
D32
D33
D34
R5
R6
R7
R13
C13
C2
52
B9
C5
C4
27
26
R4
R3
R2
R1
RA1
13
14
D2
IC1
S7 PLAY
S8 STOP/EJECT
J2
S14 SP/LP
R18
S23/S9
R12
HIFI/NORM/MIX/START
D18
PB10925
S24/S11
REVIEW/RAE
S20/S10
3 2 1
D13
S.Q/IN/OUT
IC2
B207
A
2 8 PB10925
DISPLAY/SW PWB ASS'Y
B266
B265
B264
B263
B262
B261
B259
B305
B258
B257
B256
B255
B254
B253
B267
B268
B276
B252
B251
B202
B1
B3
D10
D7
D15
D17
D16
D9
D8
D6
D19
D5
B206
B205
B209
B216
B4
B16
B15
B2
B219
B215
B12
B7
B8
D4
D3
D1
B5
B272
R14
R11
J1
COLOR SYSTEM/CHSET/SEARCH
S13/S16
D12
D14
S15/S17
STORE/C.RESET
CN2
10
42
38
33
28
18
20
14
5
1
1 2 3 4 5 6 7 8 9 10

MAIN COMPONENT PARTS LOCATION GUIDE <DISPLAY/SW>

REF.No.	LOCATION	REF.No.	LOCATION	REF.No.	LOCATION
IC		D6	8A	CONNECTOR	
IC1	2A	D7	7A	CN1	1C
IC2	4A	D11	1C	CN2	10A
DIODE		D12	9A		
D1	8A	D15	7A		
D2	2A	D18	4A		
D4	8A	D30	1C		
D5	8A				

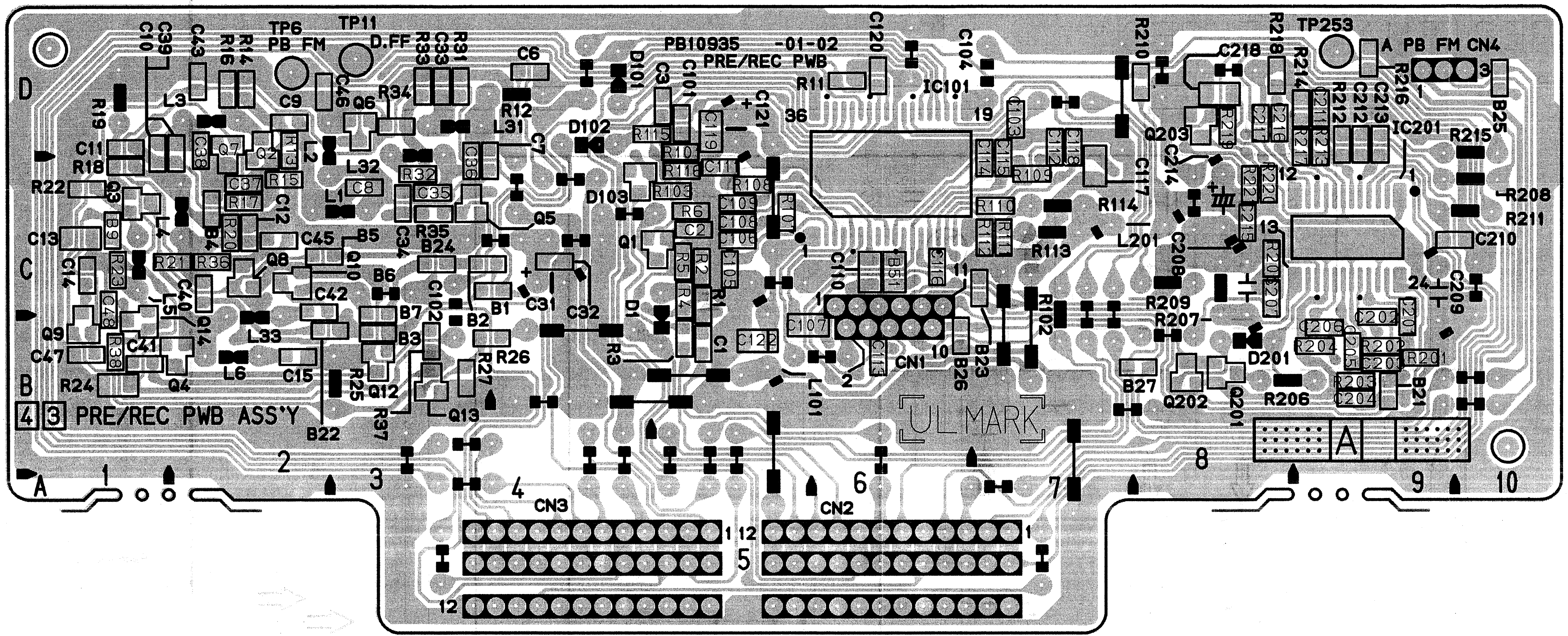
4.19 PRE/REC SCHEMATIC DIAGRAM



TO VIDEO CN201 (Page4-16)
CN2
A PB FM 1 0
A REC FM 2 1.4
A.FF 3 0(-)
HiFi REC ST(L) 4 0(5.2)
VA SEL 5 0
AVG FM 6 0(2.0)
REC COLOR 7 2.4
PB FM 8 0.5(3.2)
REC FM 9 2.1
PB FM/COL 10 0
SP(L) 11 0
GND 12 0
WF1
WF2
WF3
TO VIDEO CN202 (Page4-16)
CN3
NTSC(L) 1 5.0
REC ST(L) 2 0.8(5.0)
D.FF 3 -
SW.5V 4 5.0
C.SYNC 5 0.5
HEAD SEL 6 0
A/M/S SEL 7 4.9
COLOR ROT 8 -
REC(L) 9 0
PB SPECIAL(L) 10 3.2
SQ ON(L) 11
FROM/TO FLYING ERASE
*CN4
FE 1
FE 2
GND 3
TO FMA PRE/REC (Page4-46)
AT_A.FM
A.REC_FM
H.REC_ST(L)
REC(L)
D.A.FF
SW_5V
A.PB_FM
GND
SP(L)
FMA_CH1
COMMON
FMA_CH2
*B3
C1 0.01
R1 3.9K
R2 2.2K
R4 4.7K
D1
R3 2.2K
C2 47P
Q1 2SC4081(QRS)
R6 680
C3 0.01
C31 47/6.3
C32 0.033
R12 560
R11 1K
C6 0.001
C45 33P
TP6 PB FM
WF4
R35 180
Q5 DTA124EU
C7 680
L1 22µ
C9 0.01
C34 0.01
C36 0.01
C8 10p
C35 39P
L32 18µ
R32 100
R33 820
L2 56µ
Q2 2SA1576(QRS)
R13 2.2K
R15 390
R14 2.2K
R16 390
L3 56µ
C10 33p
R17 820
C11 0.01
Q3 2SC4081(QRS)
R18 2.2K
R20 820
L4 27µ
R21 1.2K
2.5
2.7
1.9
L5 22µ
R23 560
R19 2.2K
R22 1.2K
C13 15p
C14 15p
*C45 180p
*R36 820
C40 100p
*Q8 DTA124E
Q10 DTA124EU
C15 470P
L6 120µ
5.0
2.7
2.1
Q4 2SC4081(QRS)
R25 4.7K
R24 1.2K
Q9 DTC144WU
0
C101 0.1
C102 0.01
R101 43K
C119 0.1
C103 390p
R103 220K
D103 DAN202U
TP11 D.FF
WF5
R102 330K
D101
C104 0.01
IC101 AN3389SBNS-XE
VCC
GND
AGC DET
AGC AMP
V-I
AMP
PB AMP
ENV
LOGIC
AMP
HPF
AT OUT
TIM
MUTE SW
S/H
V-I
@ CHARGE
DET
VCA
EP REC (+)AMP
SP REC (+)AMP
EP CH1 PRE AMP
EP CH2 PRE AMP
SP CH1 PRE AMP
SP CH2 PRE AMP
EP REC (-)AMP
EP REC (-)AMP
SP REC (-)AMP
SP REC (-)AMP
REC DET
GND
GND
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19
C121 47/6.3
R107 270
C105 0.1
C106 0.01
C108 56p
C109 56p
C107 0.033
C110 0.033
R108 220
R109 270
C111 0.01
C112 0.01
C114 56p
C115 68p
C113 0.033
R110 300
C116 0.033
C117 0.1
C118 0.01
R111 2.2K
R112 1K
R113 3.3K
R114 1.8K
TO UPPER DRUM
CN1
1 EP_CH1
2 COMMON
3 EP_CH2
4 SP_CH1
5 COMMON
6 SP_CH2
7 FMA_CH1
8 COMMON
9 FMA_CH2
10 FE*
11 FE*
43 PRE/REC
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTES : 1. For PRE/REC waveforms, please refer to page4-44.
2. Mark(*) is not used.

4.20 PRE/REC CIRCUIT BOARD



LEADLESS COMPONENT PARTS LOCATION GUIDE <PRE/REC PWB>

REF.No	LOCATION	REF No	LOCATION	REF.No.	LOCATION	REF.No.	LOCATION	REF No	LOCATION	REF No	LOCATION
IC		R6	5C	R108	5C	C7	4D	C106	5C	C215	8C
IC101	6C	R11	6D	R109	7C	C8	3C	C107	5B	C216	8D
TRANSISTOR		R13	2D	R110	7C	C9	2D	C108	5C	C217	8D
Q1	5C	R14	2D	R111	7C	C10	1D	C109	5C	C218	8D
Q2	2D	R15	2C	R112	7C	C11	1D	C110	6C		
Q3	1C	R16	2D	R116	5C	C12	2C	C111	5C		
Q4	2B	R17	2C	R201	9B	C15	2B	C112	7C		
Q5	3C	R18	1C	R202	9B	C28	1C	C113	6B		
Q6	3D	R20	2C	R203	9B	C32	4C	C114	7C		
Q7	2D	R21	2C	R204	9B	C33	3D	C115	7C		
Q8	2C	R22	1C	R205	8C	C34	3C	C116	6C		
Q9	1B	R24	1B	R210	8D	C35	3C	C117	7C		
Q10	2C	R26	3B	R212	9D	C36	3C	C118	7C		
Q12	3B	R27	3B	R213	9D	C37	2C	C119	5D		
Q13	3B	R28	1C	R214	9D	C38	2D	C120	6D		
Q14	1B	R29	1C	R215	10D	C39	2D	C122	5B		
Q201	8B	R31	3D	R216	9D	C40	2C	C201	9B		
Q202	8B	R32	3C	R217	9D	C41	1B	C202	9B		
Q203	8D	R33	3D	R218	8D	C42	2C	C203	9B		
DIODE		R34	3D	R219	8D	C43	2D	C204	9B		
D103	4C	R35	3C	R220	8C	C45	2C	C205	9B		
RESISTOR		R36	2C	R221	8C	C46	2D	C206	9B		
R1	5C	R37	3B	CAPACITOR		C47	1B	C207	8C		
R2	5C	R38	1B	C1	5B	C48	1C	C210	10C		
R3	5B	R101	5C	C2	5C	C101	5D	C211	9D		
R4	5C	R103	5C	C3	5D	C103	7D	C212	9D		
R5	5C	R107	5C	C6	4D	C105	5C	C213	9D		

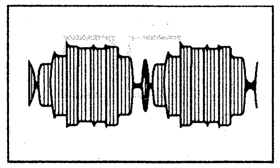
MAIN COMPONENT PARTS LOCATION GUIDE

REF.No.	LOCATION
IC	
IC101	6C
IC201	9C
TRANSISTOR	
Q1	5C
Q2	2D
Q3	1C
Q4	2B
Q5	3C
Q9	1B
Q10	2C
Q201	8B
Q202	8B
Q203	8D
DIODE	
D1	4C
D101	4D
D103	4C
D201	8B
CONNECTOR	
CN1	6B
CN2	6A
CN3	4A
TEST POINT	
TP6	2D
TP11	3D
TP253	9D

WAVEFORMS

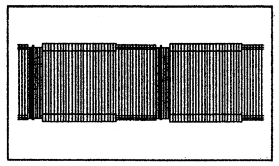
— PRE/REC —

WF1 CN2-7 REC COLOR



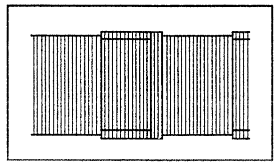
REC0.28Vp-p
10mV/20µsec/DIV

WF2 CN2-8 PB FM



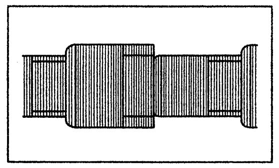
PB0.34Vp-p
10mV/10msec/DIV

WF3 CN2-9 REC FM



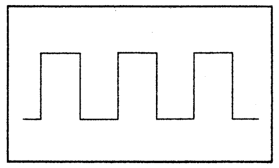
REC0.72Vp-p
20mV/5msec/DIV

WF4 TP6 PB FM/COLOR



PB0.32Vp-p
20mV/5msec/DIV

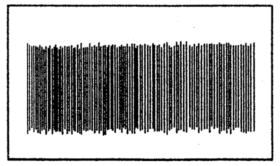
WF5 TP11 D.FF



REC/PB5.0Vp-p
0.2V/10msec/DIV

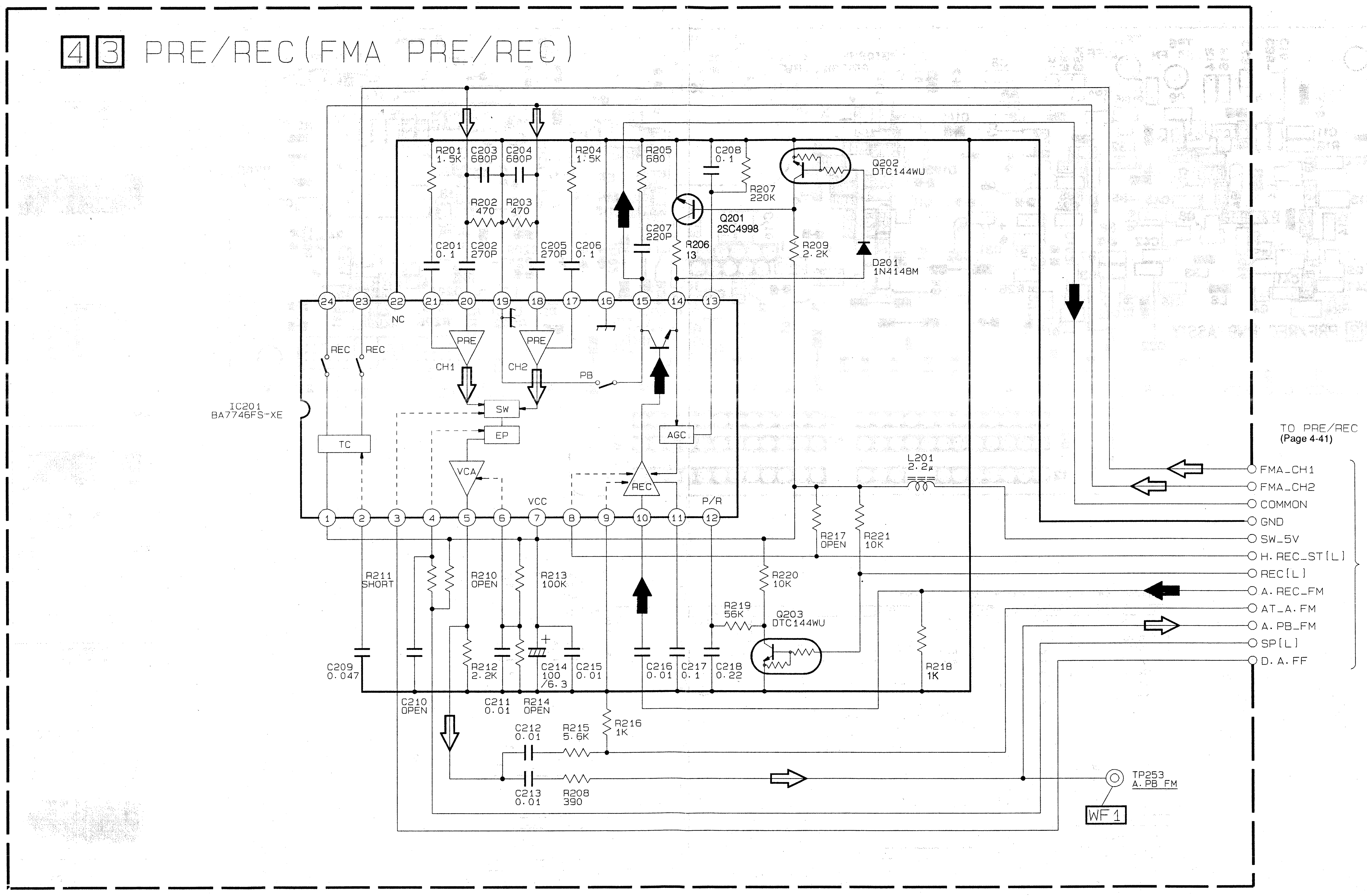
— FMA PRE/REC —

WF1 TP253 A.PB FM



REC0.5Vp-p
20mV/20µsec/DIV

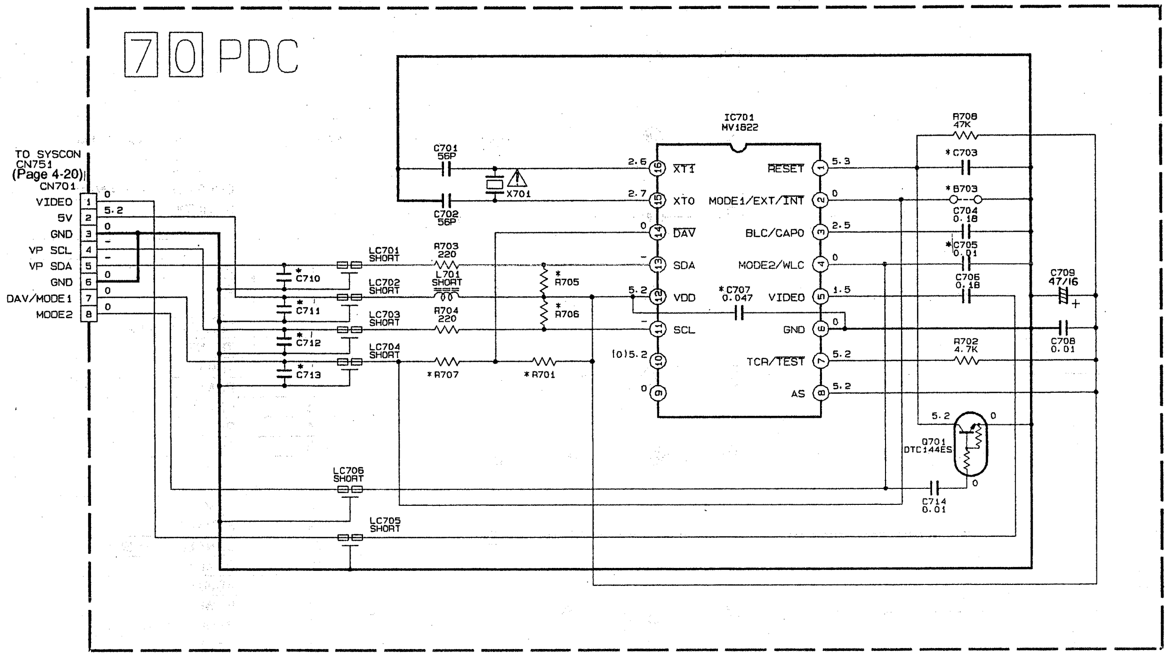
4.21 FMA PRE/REC SCHEMATIC DIAGRAM


4 3 PRE/REC(FMA PRE/REC)
R201 1.5K
C203 680P
C204 680P
R204 1.5K
R205 680
C208 0.1
Q202 DTC144WU
R207 220K
R202 470
R203 470
Q201 2SC4998
C207 220P
R206 13
R209 2.2K
D201 1N4148M
C201 0.1
C202 270P
C205 270P
C206 0.1
NC
REC
REC
PRE
PRE
CH1
CH2
PB
IC201 BA7746FS-XE
SW
EP
AGC
TC
VCA
REC
VCC
P/R
L201 2.2μ
TO PRE/REC
(Page 4-41)
FMA_CH1
FMA_CH2
COMMON
GND
SW_5V
H.REC_ST[L]
REC[L]
A.REC_FM
AT_A.FM
A.PB_FM
SP[L]
D.A.FF
R217 OPEN
R221 10K
R211 SHORT
R210 OPEN
R213 100K
R220 10K
R219 56K
Q203 DTC144WU
R218 1K
C209 0.047
R212 2.2K
C214 100 /6.3
C215 0.01
C216 0.01
C217 0.1
C218 0.22
C210 OPEN
C211 0.01
R214 OPEN
R216 1K
C212 0.01
R215 5.6K
C213 0.01
R208 390
TP253 A.PB FM
WF1
5
4
3
2
1
A
B
C
D
E
F
G
H

NOTE : For FMA PRE/REC waveforms,please refer to page 4-44.

4.22 PDC SCHEMATIC DIAGRAM

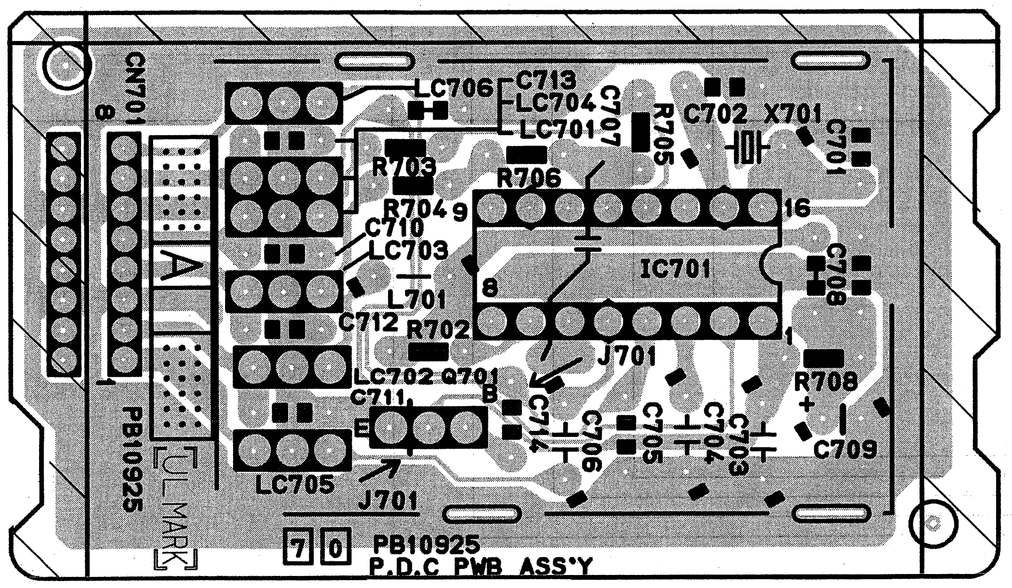
—HR-J625EK only—


70 PDC
TO SYSCON CN751 (Page 4-20)
CN701
VIDEO
5V
GND
VP SCL
VP SDA
GND
DAV/MODE1
MODE2
IC701 MV1822
XTI
XTO
DAV
SDA
VDD
SCL
RESET
MODE1/EXT/INT
BLC/CAPO
MODE2/WLC
VIDEO
GND
TCR/TEST
AS
X701
Q701 DTC144ES
LC701 SHORT
LC702 SHORT
LC703 SHORT
LC704 SHORT
LC705 SHORT
LC706 SHORT
R708 47K
C709 47/16
C708 0.01
C714 0.01

NOTE: Mark(*)is not used.

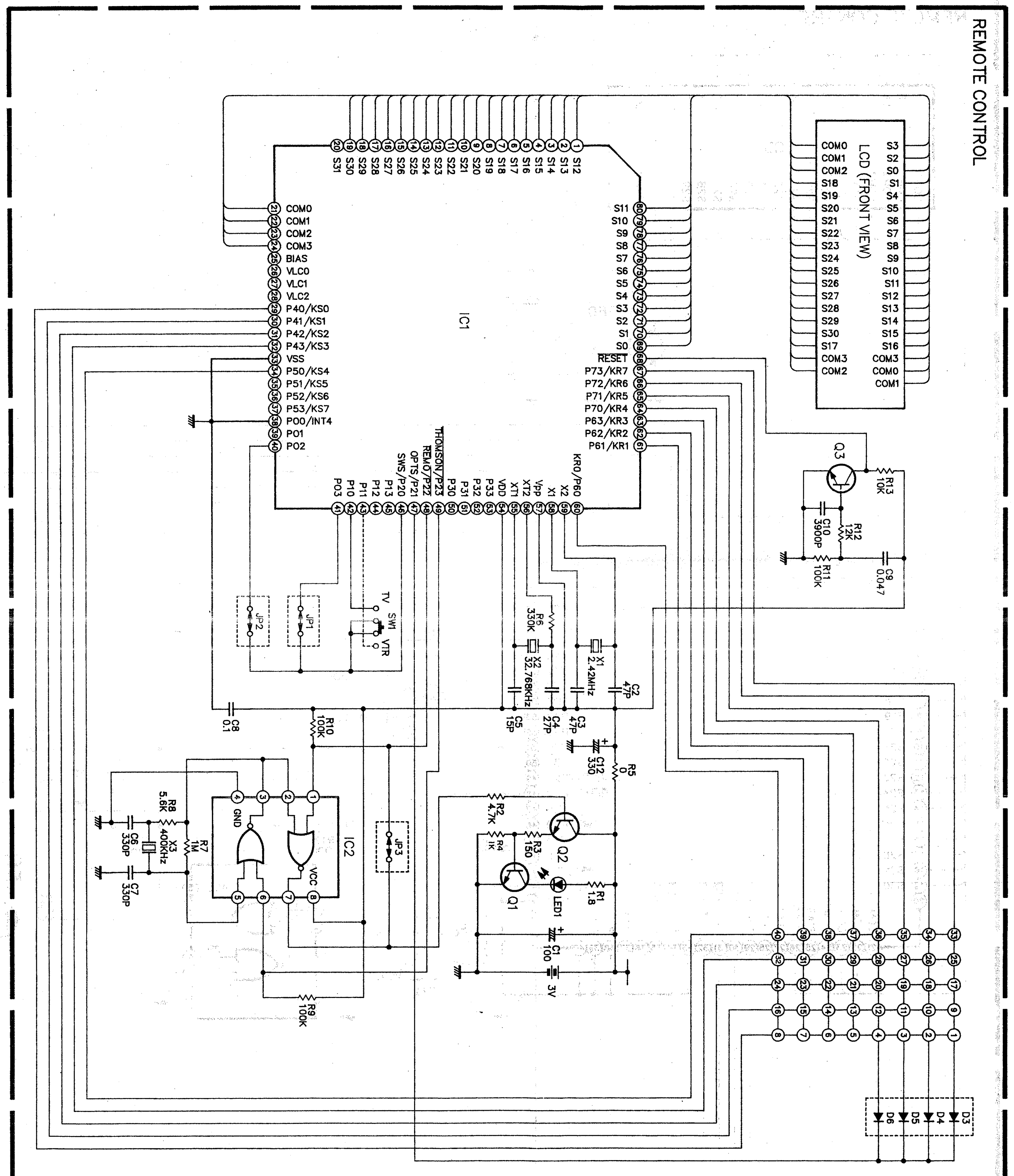
4.23 PDC CIRCUIT BOARD

—HR-J625EK only—


CN701
IC701
X701
J701
Q701
PB10925
UL MARK
70 PB10925 P.D.C PWB ASS'Y

4.24 REMOTE CONTROL SCHEMATIC DIAGRAM (for HR-J625EK)

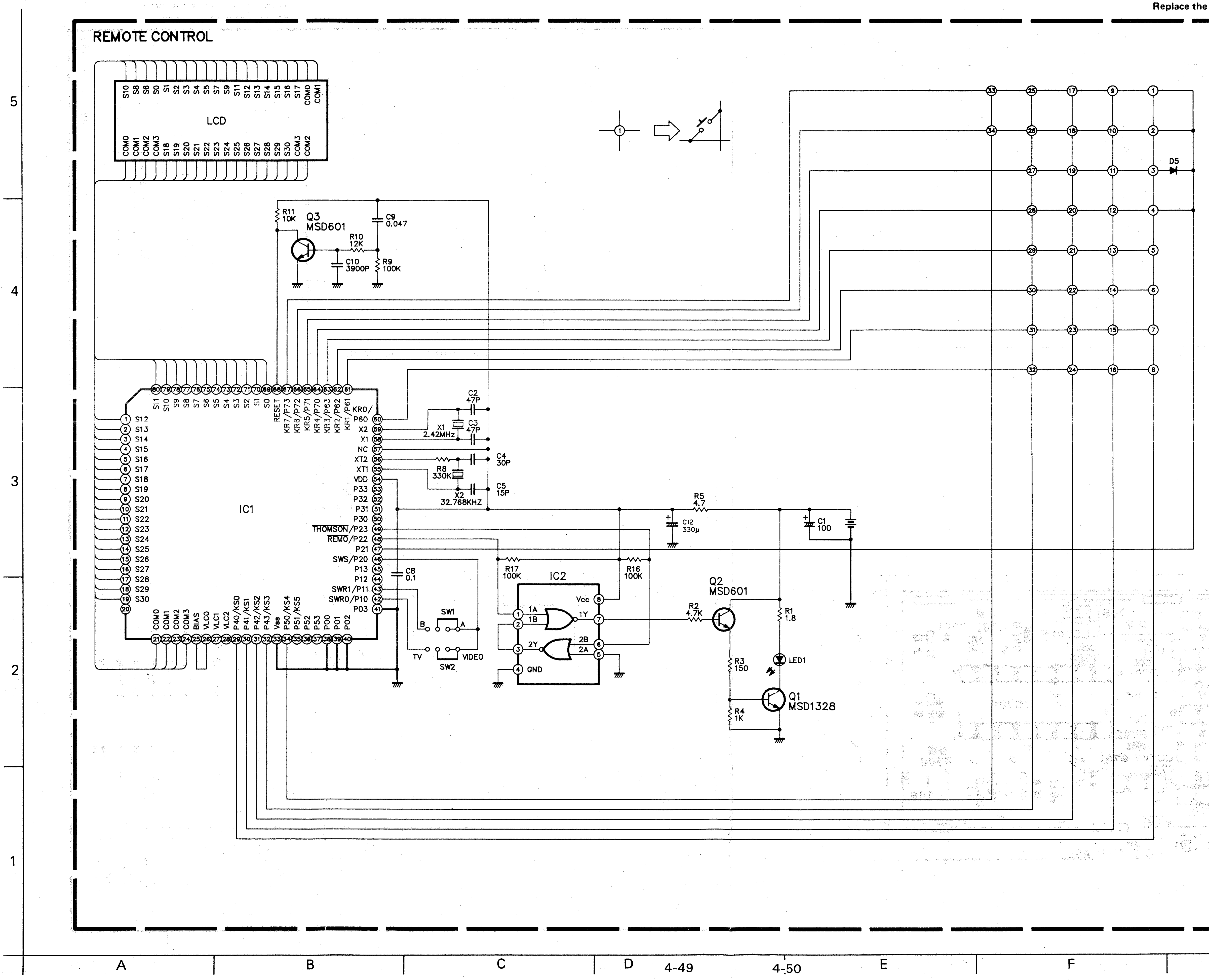
NOTE:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.


REMOTE CONTROL
IC1
IC2
LCD (FRONT VIEW)
Q1
Q2
Q3
LED1
X1 2.42MHz
X2 32.768KHz
X3 400KHz
S/W1 TV VTR
JP1
JP2
JP3
D3
D4
D5
D6
C1 100 3V

Key No.	Key NAME
1	PROG.
2	2
3	5
4	8
5	0
6	TRANS
7	VOL +
8	VOL −
9	RE−VIEW
10	1
11	4
12	7
13	CANCEL
14	SELECT/C.MEMOY
15	TV PROG. +
16	TV PROG. −
17	ADJUST
18	9
19	FF ▷▷
20	TIMER
21	OPERATE
22	3
23	6
24	PAUSE
25	R.A.E IN/OUT
26	A. MONITOR
27	R.A.E START
28	PUSH JOG +
29	DISPLAY
30	PLAY ▷
31	STOP ■
32	−/−−
33	A/B
34	STORE
35	R.A. EDIT
36	PUSH JOG −
37	REC ●
38	TV/VIDEO
39	REW ◁◁
40	CH SET/SEARCH
37+30	REC START
37+24	REC PAUSE

4.25 REMOTE CONTROL SCHEMATIC DIAGRAM (for HR-J620EK)

NOTE:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.


REMOTE CONTROL
LCD
S10 S8 S6 S0 S1 S2 S3 S4 S5 S7 S9 S11 S12 S13 S14 S15 S16 S17 COM0 COM1
COM0 COM1 COM2 COM3 S18 S19 S20 S21 S22 S23 S24 S25 S26 S27 S28 S29 S30 COM3 COM2
IC1
S11 S10 S9 S8 S7 S6 S5 S4 S3 S2 S1 S0 RESET KR7/P73 KR6/P72 KR5/P71 KR4/P70 KR3/P63 KR2/P62 KR1/P61
KR0/P60 X2 X1 NC XT2 XT1 VDD P33 P32 P31 P30 THOMSON/P23 REMO/P22 P21 SWS/P20 P13 P12 SWR1/P11 SWR0/P10 P03
S12 S13 S14 S15 S16 S17 S18 S19 S20 S21 S22 S23 S24 S25 S26 S27 S28 S29 S30
COM0 COM1 COM2 COM3 BIAS VLC0 VLC1 VLC2 P40/KS0 P41/KS1 P42/KS2 P43/KS3 Vss P50/KS4 P51/KS5 P52 P53 P00 P01 P02
R11 10K
Q3 MSD601
C9 0.047
R10 12K
C10 3900P
R9 100K
C2 47P
X1 2.42MHz
C3 47P
C4 30P
R8 330K
C5 15P
X2 32.768KHZ
C8 0.1
SW1
B A
TV VIDEO
SW2
R17 100K
IC2
R16 100K
Vcc 1A 1B 1Y 2Y 2B 2A GND
R5 4.7
C12 330μ
C1 100
Q2 MSD601
R2 4.7K
R1 1.8
R3 150
LED1
Q1 MSD1328
R4 1K
D5
5 4 3 2 1
A B C D E F G H

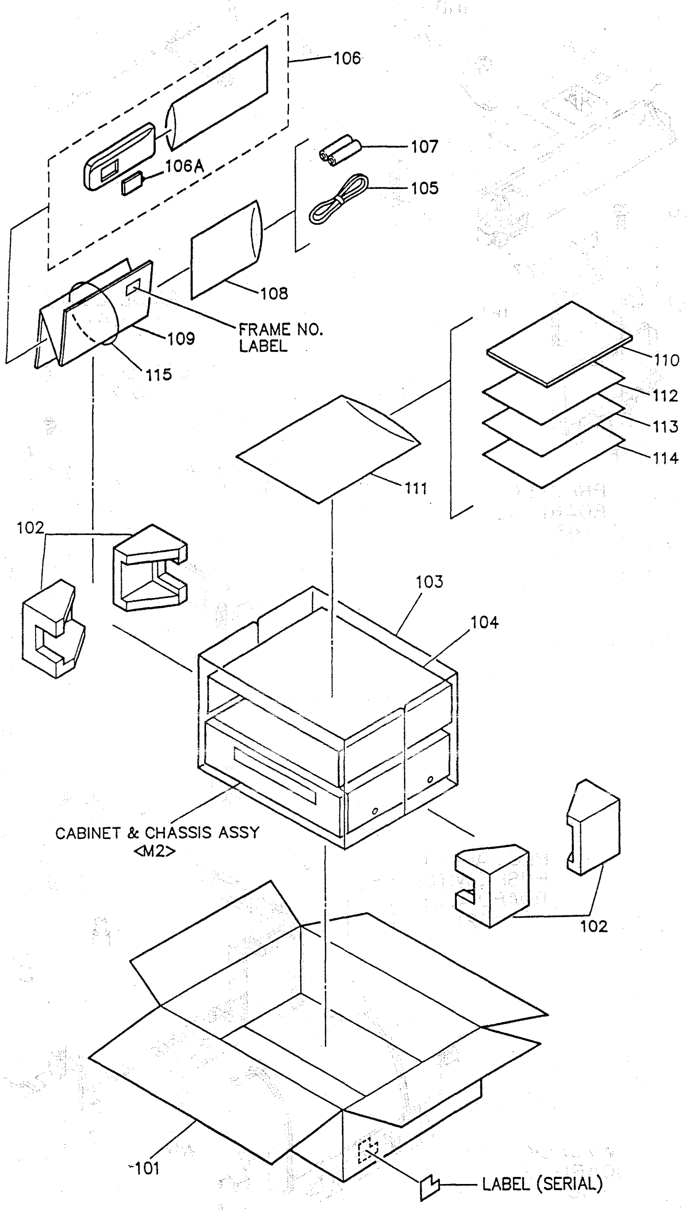
Key No.	FUNCTION NAME
1	RE–VIEW
2	OPERATE/TV STANDBY
3	MONITOR
4	1
5	2
6	6
7	3
8	5
9	SELECT/C.MEMO.
10	TRANS
11	TIMER
12	PLAY
13	REW
14	REC
15	FF
16	STOP
17	4
18	7/VPS
19	8/DAILY
20	CANCEL/C.RESET
21	0/AUX
22	ADJUST
23	9/WEEKLY
24	PROG./CLOCK/CH
25	PAUSE
26	TV PROG +
27	TV PROG –
28	VOL.–
29	A.MONITOR/MUTE
30	SP/LP –/––
31	VOL.+
32	DISPLAY
33	SEARCH << +10
34	SEARCH >> +20
14+12	REC START
14+25	REC PAUSE

SECTION 5
PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

5.1 PACKING AND ACCESSORY ASSEMBLY <M1>


106
106A
107
105
108
FRAME NO. LABEL
109
115
110
112
113
114
111
102
103
104
CABINET & CHASSIS ASSY <M2>
102
101
LABEL (SERIAL)

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION

****

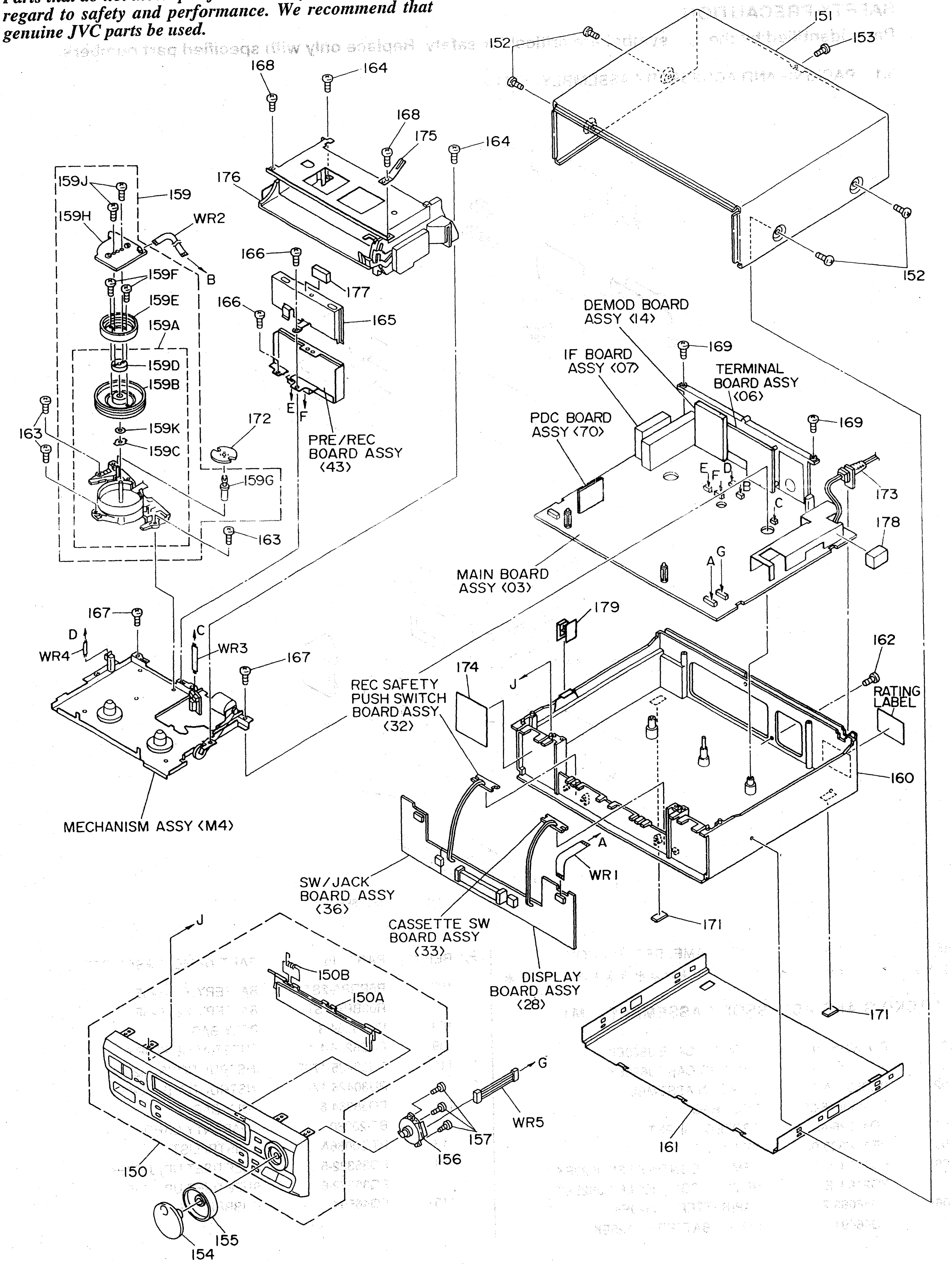
PACKING AND ACCESSORY ASSEMBLY <M1>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	101	PQ35315-10	PACKING CASE,J620EK
		PQ35315-13	PACKING CASE,J625EK
	102	PQ35316A-1	CUSHION ASSEMBLY
	103	PQM30045-36	POLY BAG
	104	PQ41026-43	PROTECT SHEET
⚠	105	PEAC0300-02	RF CABLE
⚠	106	PQ11534L-18	REMOTE CONTROLLER,J620EK
⚠		PQ21831E	REMOTE CONTROLLER,J625EK
	106A	PQ46063-2	CAP(BATTERY),J620EK
		PQ46491	COVER(BATTERY),J625EK
	107	R6PRPA-2ST	BATTERY,X2 J620EK
		R03BPA-2ST	BATTERY,X2 J625EK
	108	PQ35364-3	POLY BAG
	109	PQ35274-1-1	SHEET,ACCESSORY
⚠	110	PU30425-1707	INSTRUCTIONS,J620EK
⚠		PU30425-1722	INSTRUCTIONS,J625EK
	111	PQ35364-6	POLY BAG
	112	BT-20060	GUARANTY CARD
	113	BT-20066A	E.DISTRI.LIST
	114	PQ35322-5	SHEET(SET UP),J620EK
		PQ35322-6	SHEET(SET UP),J625EK
	115	PQ46504	RUBBER BAND

5.2 CABINET AND CHASSIS ASSEMBLY <M2>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.

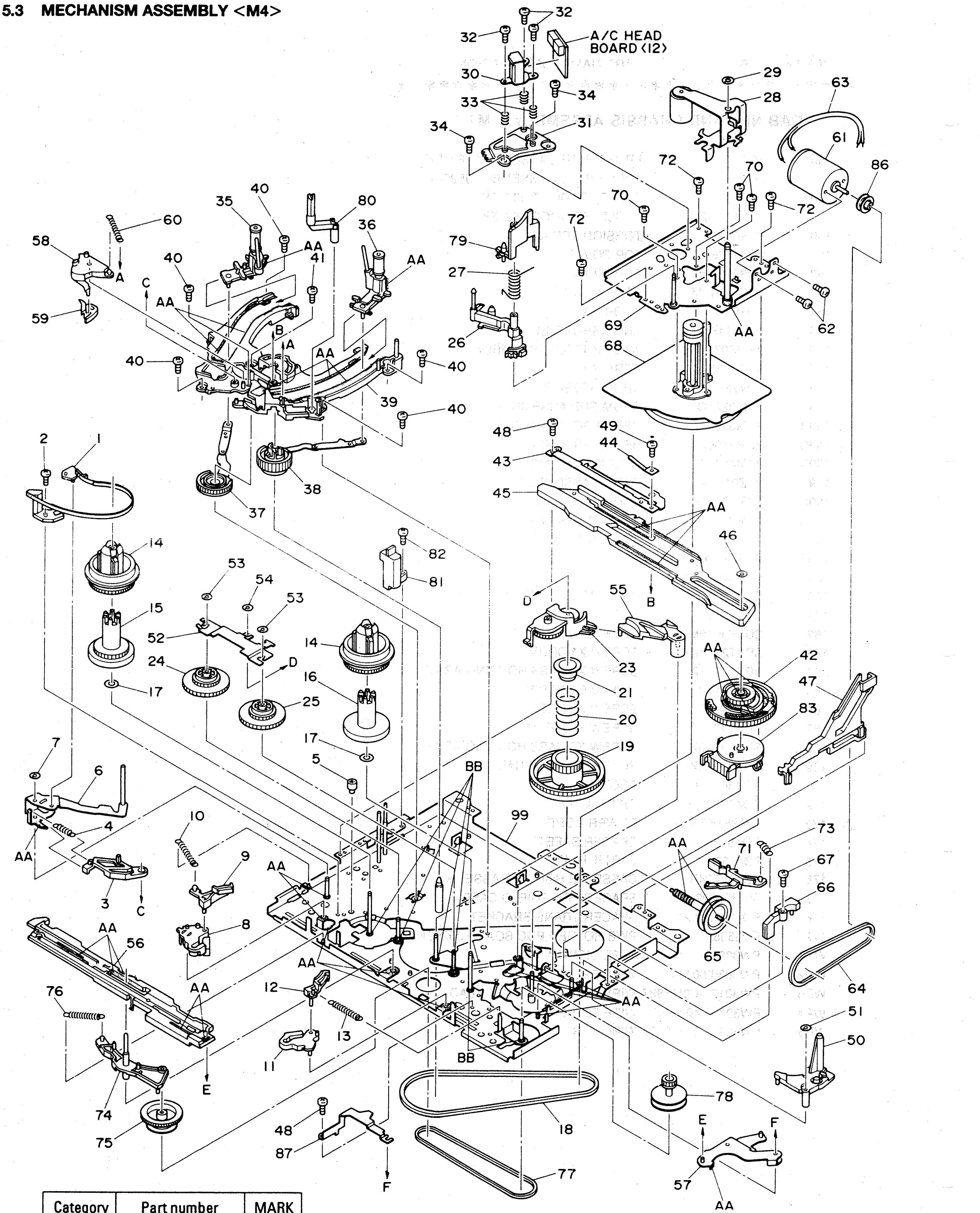

151
152
153
152
168
164
168
175
164
176
159J
159
159H
WR2
B
166
177
159F
159E
166
165
159A
159D
159B
DEMOD BOARD ASSY <14>
IF BOARD ASSY <07>
169
TERMINAL BOARD ASSY <06>
E
F
172
PDC BOARD ASSY <70>
169
163
159K
159C
PRE/REC BOARD ASSY <43>
159G
E F D
B
C
173
178
163
A
G
MAIN BOARD ASSY <03>
179
167
D
C
WR4
WR3
167
162
174
J
REC SAFETY PUSH SWITCH BOARD ASSY <32>
RATING LABEL
160
MECHANISM ASSY <M4>
A
WR1
SW/JACK BOARD ASSY <36>
171
J
CASSETTE SW BOARD ASSY <33>
150B
DISPLAY BOARD ASSY <28>
150A
171
G
WR5
157
161
156
150
155
154

****

CABINET AND CHASSIS ASSEMBLY <M2>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	150	PQ11775AA	FRONT PANEL ASSEMBLY,J625EK
		PQ11775K	FRONT PANEL ASSEMBLY,J620EK
	150A	PQ21778-12	CASSETTE DOOR,J620EK
		PQ21778-20	CASSETTE DOOR,J625EK
	150B	PQ46448	TORSION SPRING
⚠	151	PQ11676-7	TOP COVER
	152	SDSF3010M	SCREW,X4
	153	SDSF3010M	SCREW
	154	PQ35247-4	KNOB(JOG)
	155	PQ35248-3	KNOB(SHUTTLE)
	156	PEME0757-03	JOG SHUTTLE ASSEMBLY
	157	SDSF2608Z	SCREW,X3
	159	PDV2362A	DRUM ASSEMBLY
	159A	PDM2261Q	DRUM SUB ASSEMBLY
	159B	PDM3353AD	UPPER DRUM ASSEMBLY
	159C	PDM4400A	BRUSH ASSEMBLY
	159D	PDM4345A	COLLAR ASSEMBLY
	159E	PDZ0141-2	ROTOR ASSEMBLY
	159F	SPSH2660Z	SCREW,X2
	159G	PDM4311A-1	ROLLER ASSEMBLY
⚠	159H	PDZ0141-1-2	STATOR ASSEMBLY
	159J	SPSP2606Z	SCREW,X2
	159K	PDM4050-9	WASHER,*A
⚠	160	PQ11666-1-10	BOTTOM CHASSIS
⚠	161	PQ11668-1-8	BOTTOM COVER
	162	SDSF3010M	SCREW,BOTTOM COVER
	163	SPST2608Z	SCREW,X3 DRUM
	164	SPST2612Z	SCREW,X2 CASS HOUSING ASSY
	165	PQ21740-1-1	SHIELD CASE,PRE
	166	SDST2606Z	SCREW,X2 PRE
	167	SDSF4012Z	SCREW,X2 MECH
	168	SDSF3010Z	SCREW,X2 CASS HOUSING ASSY
	169	SDSF3010Z	SCREW,X2 TERMINAL
	171	PQ43013-3	FOOT,X2
	172	PQ45160	INERTIA PLATE
⚠	173	QMP51K0-170	POWER CORD
⚠	174	PQ46485	SPACER,SAFETY
	175	PQ41556	EARTH PLATE
	176	PUS29724B-2	CASSETTE HOUSING ASSEMBLY
	177	PQM30029-244	SPACER,PRE SHIELD CASE
	178	PQM30029-245	SPACER,TRANS BRACKET
	179	PQ35356	PWB HOLDER,PDC BOARD J625EK
	WR1	PW30802-1114	WIRE,DISP/SW
	WR2	PW30803-0414	WIRE,DRUM
	WR3	PW30101-C0HH887	WIRE,AUDIO CONTROL HEAD
	WR4	PW30701-40AAY.Y	WIRE,FE HEAD
	WR5	PW30218-0831613	WIRE,JOG

5.3 MECHANISM ASSEMBLY <M4>


32
32
A/C HEAD
BOARD (12)
30
34
33
29
28
63
34
31
61
72
70
86
40
35
80
70
72
72
60
58
36
79
40
AA
41
AA
27
A
C
AA
59
B
A
62
69
AA
26
68
40
AA
40
39
40
48
49
44
2
1
43
38
37
45
AA
14
46
82
53
54
81
53
15
D
55
B
52
14
D
24
AA
42
23
16
17
21
47
25
20
83
7
17
19
5
BB
6
10
99
4
73
AA
AA
71
9
AA
67
3
C
66
AA
8
56
AA
65
64
AA
76
12
AA
51
13
50
11
BB
E
78
74
48
E
F
18
75
87
77
F
57
AA

Category	Part number	MARK
Grease	KYODO-SH-P	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

****

MECHANISM ASSEMBLY <M4>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ46298A-3	TENSION BAND ASSEMBLY
	2	SDST2608Z	SCREW
	3	PQ35012	TENSION ARM LEVER
	4	PQM30001-385	TENSION SPRING
	5	PQ46302	ADJUST PIN
	6	PQ46303A-1	TENSION ARM ASSEMBLY
	7	PQM30017-47	SLIT WASHER
	8	PQ46305B-3	MAIN BRAKE ASSEMBLY(SUPPLY)
	9	PQ46306A-3	SUB BRAKE ASSEMBLY(SUPPLY)
	10	PQM30001-393	TENSION SPRING
	11	PQ46308A-2	MAIN BRAKE ASSEMBLY(TAKE UP)
	12	PQ46309A-4	SUB BRAKE ASSEMBLY(TAKE UP)
	13	PQM30001-389102	TENSION SPRING
	14	PQ21683-1-3	REEL DISK,X2
	15	PQ35014-1-3	SLIT DISK(SUPPLY)
	16	PQ35015-1-3	SLIT DISK(TAKE UP)
	17	PQM30018-69	SPECER,X2
	18	PQM30003-33	BELT(CAPSTAN)
	19	PQ46497B	PULLEY
	20	PQM30002-233	COMPRESSION SPRING
	21	PQ46311	SPRING CAP
	22	PQM30018-69	SPACER
	23	PQ46312B	IDLER ARM ASSEMNLY
	24	PQ46316A-1	CLUTCH UNIT(SUPPLY)
	25	PQ46323A-1	CLUTCH UNIT(TAKE UP)
	26	PQ46325A-6	GUIDE ARM ASSEMBLY
	27	PQ46326-1-2	TORSION SPRING
	28	PQ46327A	PINCH ROLLER ARM ASSEMBLY
	29	PQM30017-24	SLIT WASHER
	30	PEHE0182	AUDIO/CONTROL HEAD
	31	PQ35206	HEAD BASE
	32	PQ43687A	SPECIAL SCREW,X3
	33	PQM30002-192	COMPRESSION SPRING,X3
	34	SDST2604Z	SCREW,X2
	35	PQ46330A	POLE BASE ASSY(SUPPLY)
	36	PQ46331A	POLE BASE ASSY(TAKE UP)
	37	PQ46332A-2	LOADING ARM ASSY(SUPPLY)
	38	PQ46337A-3	LOADING ARM ASSY(TAKE UP)
	39	PQ11657-1-5	GUIDE RAIL
	40	SPST2608Z	SCREW,X5
	41	SDST2612Z	SCREW
	42	PQ21684-1-3	CONTROL CAM
	43	PQ35138-1-2	CONTROL BRACKET
	44	PQ46423	EARTH PLATE
	45	PQ11658-1-5	CONTROL PLATE
	46	PQM30017-8	SLIT WASHER
	47	PQ21685-2-6	PINCH PLATE
	48	SPST2606Z	SCREW,X2
	49	SPSF2608M	SCREW
	50	PQ46342A-6	LEVER ASSY
	51	PQM30017-8	SLIT WASHER
	52	PQ35083-1-2	REEL BRACKET
	53	PQM30017-51	SLIT WASHER,X2
	54	Q03093-830	WASHER
	55	PQ35026-1-2	IDLER LEVER
	56	PQ11659-1-10	SLIDE PLATE
	57	PQ46344A-2	CHANGE LEVER ASSEMBLY
	58	PQ21686	TAKE UP LEVER ASSEMBLY
	59	PQ46345	TAKE UP HEAD
	60	PQM30001-387106	TENSION SPRING
⚠	61	PU60628-3-2	MODE MOTOR
	62	SPSP3003Z	SCREW,X2
	63	PW30101-80AJ632	WIRE
	64	PQM30003-34-17	BELT
	65	PQ46395A	WORM GEAR ASSMBLY
	66	PQ21699	WORM BEARING
	67	SPST2606Z	SCREW
⚠	68	PU61435	CAPSTAN MOTOR
	69	PQ46347B-8	SUB DECK ASSEMBLY
	70	SPSG2608Z	SCREW,X3
	71	PQ46356A-1	CAPSTAN BRAKE ASSEMBLY
	72	SPST2606Z	SCREW,X3
	73	PQM30001-384101	TENSION SPRING,C.BRAKE
	74	PQ46353A-1	CHANGE ARM ASSEMBLY
	75	PQ46354	CHANGE GEAR
	76	PQM30001-386	TENSION SPRING
	77	PQM30003-35	BELT
	78	PQ46355	CASSETTE GEAR
	79	PQ35030	LID GUIDE
	80	PQ21689	LED PRISM
	81	PEHE0237	FULL ERASE HEAD
	82	SDST2610Z	SCREW
	83	PU61432-1-1	ROTARY ENCODER
	86	PQ43546-1-2	MOTOR PULLEY
	87	PQ35217-1-2	CONTROL BRACKET 2
	99	PQ21680B-11	MAIN DECK ASSEMBLY

5.4 ELECTRICAL PARTS LIST

****

MAIN BOARD ASSEMBLY <03>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	PWBA	PB10933A-03	MAIN BOARD ASSEMBLY,J620EK
		PB10933E-01	MAIN BOARD ASSEMBLY,J625EK
	OTH1	PQ46408-1-2	SENSOR CAP,X2
⚠	TNR1	PERF0201	TUNER UNIT
⚠	TNR2	PERF0190	IF UNIT
	IC1	BA7795LS	IC
		or XRA7795LS	IC
	IC101	JCP0056	IC
	IC102	BA6138	IC
	IC201	JCP0045B-1	IC
	IC202	TL8850P	IC
	IC401	BU2885S	IC
		or BU2884S	IC
	IC601	HD6433928TA24F	QFP IC (MCU)
	IC602	XLJ93LC56A	IC
		or AT93C56-10PC	IC
		or 93C56/P	IC
		or 93LC56/P	IC
		or 93LC56B/P	IC
	IC603	S-80728AN-Z	IC
		or RE5VA28A	IC
	IC604	TA7291S	IC
	IC607	M50253P	IC
		or BU2090	IC
	IC901	M5223L	IC,J625EK
		or XRA15218N	IC,J625EK
		or BA15218N	IC,J625EK
	Q1	2SA1576(QR)	TRANSISTOR
	Q2	2SA1576(QR)	TRANSISTOR
	Q3	2SC4081(QR)	TRANSISTOR
	Q202	2SC4081(QRS)	TRANSISTOR
	Q203	2SC4081(QRS)	TRANSISTOR
	Q204	2SC4081(QRS)	TRANSISTOR
	Q205	DTC144WU	TRANSISTOR
	Q206	2SA1576(QRS)	TRANSISTOR
	Q210	DTC144EU	TRANSISTOR
	Q601	2SC4081(QRS)	TRANSISTOR
	Q604	PN268VI	PHOTO TRANSISTOR
	Q605	PN268VI	PHOTO TRANSISTOR
	Q607	DTC143EU	TRANSISTOR
	Q608	DTC124EU	TRANSISITOR
	Q609	DTC124EU	TRANSISTOR
	Q801	2SK2043-CB14	FE TRANSISTOR
		or 2SK1953-LF	FE TRANSISTOR
		or 2SK2324-LT	FE TRANSISTOR
	Q802	2SC3616(ML)	TRANSISTOR
	Q851	2SD2166	TRANSISTOR
	Q852	2SC1740S	TRANSISTOR
	Q853	2SC3616(MLK)	TRANSISTOR
	Q854	DTA114EU	TRANSISTOR
	Q855	2SD2144S(UVW)	TRANSISTOR
	Q856	2SB1256	TRANSISTOR
	Q857	DTC114TU	TRANSISTOR
	Q858	2SC1740S(RS)	TRANSISTOR
		or 2SC3199(GB)-TJK	TRANSISTOR
	Q859	2SD1302(ST)	TRANSISTOR
		or 2SD1450S,T	TRANSISTOR
	Q901	DTC114EU	TRANSISTOR
	Q902	2SB810H,J	TRANSISTOR
	Q903	2SC3068	TRANSISTOR
	Q904	2SA1576(RS)	TRANSISTOR
	Q905	2SC4081(RS)	TRANSISTOR
	Q906	DTC114EU	TRANSISTOR
	Q909	DTA144EU	TRANSISTOR
	Q910	2SA933S(RS)	TRANSISTOR
	D1	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE
	D202	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE
	D203	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE
	D204	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE
	D205	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE
	D208	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE
	D209	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE
	D601	RD9.1ES-T1B2	ZENER DIODE
	D602	11ES2	DIODE
	D603	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE
	D604	11ES2	DIODE
	D605	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE
	D606	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE
	D607	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE
	D609	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE
	D610	SIR-381SB3FM	LE DIODE
		or SIR-381SB3FX1M	LE DIODE
	D612	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE
	D613	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE
	D801	10E6-F2	DIODE
	D802	10E6-F2	DIODE
	D803	10E6-F2	DIODE
	D804	10E6-F2	DIODE
	D807	1N4148M	DIODE
		or 1SS133	DIODE
		or MA165	DIODE

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	D808	1N4148M	DIODE	
		or 1SS133	DIODE	
		or MA165	DIODE	
	D809	MTZ27BT-77	ZENER DIODE	
		or UZ27BSB	ZENER DIODE	
		or RD27ES-T1B2	DIODE	
	D810	AU01	FR DIODE	
		or ERA18-04-T2	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
		or 10ELS4	FR DIODE	
	D811	AU01	FR DIODE	
		or ERA18-04-T2	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
		or 10ELS4	FR DIODE	
	D851	AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
		or 10ELS2	FR DIODE	
	D852	FML-12S	FR DIODE	
	D854	FMB-24	BARRIER DIODE	
	D855	RD15ES-T1B1	ZENER DIODE	
		or UZ15BSA	DIODE	
	D856	RD6.2ES-T1B3	ZENER DIODE	
		or UZ6.2BSC	ZENER DIODE	
		or MTZV6.2C	ZENER DIODE	
	D858	HZ27BP	ZENER DIODE	
	D859	HZ30CP	ZENER DIODE	
	D862	RD5.1JSB2	DIODE	
	D863	1N4148M	DIODE	
		or 1SS133	DIODE	
		or MA165	DIODE	
	D864	11ES2	DIODE	
	D865	1SS131Y	DIODE	
	D866	1SS131Y	DIODE	
	D867	1SS131Y	DIODE	
	D868	1SS131Y	DIODE	
	D869	1N4148M	DIODE	
		or 1SS133	DIODE	
		or MA165	DIODE	
	D870	1N4148M	DIODE	
		or 1SS133	DIODE	
		or MA165	DIODE	
	D901	MTZ10D	ZENER DIODE	
	D903	1SS133	DIODE	
		or MA165	DIODE	
		or 1N4148M	DIODE	
	D904	1SS133	DIODE	
		or 1N4148M	DIODE	
		or MA165	DIODE	
	D905	1SS133	DIODE	
		or MA165	DIODE	
		or 1N4148M	DIODE	
	R1	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
	R2	QRD161J-221	RESISTOR	220Ω,1/6W
	R3	QRD161J-102	RESISTOR	1kΩ,1/6W
	R4	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
	R5	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
	R6	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
	R7	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
	R8	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R9	QRSA08J-561YN	RESISTOR	560Ω,1/10W
	R11	QRD161J-153	RESISTOR	15kΩ,1/6W
	R12	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
	R13	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
	R14	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R19	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
	R20	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
	R21	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
	R22	QRSA08J-274YN	RESISTOR	270kΩ,1/10W
	R23	QRSA08J-121YN	RESISTOR	120Ω,1/10W
	R24	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
	R25	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R26	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
	R27	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
	R29	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R30	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
	R31	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R32	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	R33	QRSA08J-820YN	RESISTOR	82Ω,1/10W
	R34	QRSA08J-3R3YN	RESISTOR	3.3Ω,1/10W
	R35	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
	R36	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
	R42	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
	R43	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
	R44	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
	R101	QRD161J-393	RESISTOR	39kΩ,1/6W
	R103	QRD161J-393	RESISTOR	39kΩ,1/6W
	R104	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	R106	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	R107	QRSA08J-511YN	RESISTOR	510Ω,1/10W
	R108	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R109	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
	R110	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
	R111	NRVA62B-153N	RESISTOR	15kΩ,1/16W
	R112	QRD161J-682	RESISTOR	6.8kΩ,1/6W
	R113	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R114	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R115	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R116	QRSA08J-274YN	RESISTOR	270kΩ,1/10W
	R117	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
	R118	NRVA62B-113N	RESISTOR	11kΩ,1/16W
	R119	QRSA08J-392YN	RESISTOR	3.9kΩ,1/10W
	R120	QRSA08J-123YN	RESISTOR	12kΩ,1/10W
	R121	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R122	QRSA08J-511YN	RESISTOR	510Ω,1/10W
	R123	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	R125	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	R126	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
	R128	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
	R130	QRD161J-102	RESISTOR	1kΩ,1/6W
	R132	QRD161J-102	RESISTOR	1kΩ,1/6W
	R134	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R135	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	R136	QRSA08J-183YN	RESISTOR	18kΩ,1/10W
	R137	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
⚠	R138	QRD161J-221	RESISTOR	220Ω,1/6W
	R201	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
	R202	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
	R205	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
	R206	QRSA08J-475YN	RESISTOR	4.7MΩ,1/10W
	R208	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R209	QRSA08J-391YN	RESISTOR	390Ω,1/10W
	R210	QRSA08J-512YN	RESISTOR	5.1kΩ,1/10W
	R211	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R212	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R213	QRSA08J-621YN	RESISTOR	620Ω,1/10W
R214	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R215	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R216	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R217	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R218	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R219	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
R220	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R222	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R223	QRD161J-102	RESISTOR	1kΩ,1/6W
R224	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
R229	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R230	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R231	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R232	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R233	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R234	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R235	QRSA08J-821YN	RESISTOR	820Ω,1/10W
R244	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R247	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R251	QRSA08J-823YN	RESISTOR	82kΩ,1/10W
R253	QRSA08J-824YN	RESISTOR	820kΩ,1/10W
R254	QRSA08J-185YN	RESISTOR	1.8MΩ,1/10W
R255	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
R401	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R402	QRSA08J-561YN	RESISTOR	560Ω,1/10W
R403	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R404	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R405	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R406	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R407	QRSA08J-242YN	RESISTOR	2.4kΩ,1/10W
R408	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R409	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R410	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R411	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R412	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R415	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R418	QRD161J-821	RESISTOR	820Ω,1/6W
R601	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R602	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R603	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R604	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R605	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R606	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R607	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R608	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R609	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R610	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R611	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R612	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R613	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R614	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R615	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R616	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R617	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R618	QRSA08J-332YN	RESISTOR	3.3kΩ,1/10W
R619	QRD161J-332	RESISTOR	3.3kΩ,1/6W
R620	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R621	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R622	QRSA08J-271YN	RESISTOR	270Ω,1/10W
R623	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R624	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R625	QRD161J-152	RESISTOR	1.5kΩ,1/6W
R626	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R628	QRSA08J-272YN	RESISTOR	2.7kΩ,1/10W
R629	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R630	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R631	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R632	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R633	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R634	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R636	QRD161J-271	RESISTOR	270Ω,1/6W
R637	QRD161J-271	RESISTOR	270Ω,1/6W
R638	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R639	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R640	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R641	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R642	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R643	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R644	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R645	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R646	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R647	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R649	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R650	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R651	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R652	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R653	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R654	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R655	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R656	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R657	QRSA08J-102YN	RESISTOR,J625EK	1kΩ,1/10W
R658	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R659	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R662	QRSA08J-681YN	RESISTOR	680Ω,1/10W
R663	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R664	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R665	QRD161J-103	RESISTOR	10kΩ,1/6W
R666	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R667	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
R669	QRD161J-103	RESISTOR	10kΩ,1/6W
R670	QRSA08J-682YN	RESISTOR	6.8kΩ,1/10W
R671	QRD161J-104	RESISTOR	100kΩ,1/6W
R672	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R673	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R674	QRSA08J-105YN	RESISTOR	1MΩ,1/10W
R675	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R676	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R677	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R678	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R679	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R680	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R681	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R682	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R685	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R686	QRD161J-750	RESISTOR	75Ω,1/6W
R687	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R688	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R689	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R690	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R691	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R692	QRSA08J-271YN	RESISTOR,J625EK	270Ω,1/10W
R694	QRSA08J-102YN	RESISTOR	1kΩ,1/10W

#△ REF No.	PART No.	PART NAME, DESCRIPTION	
R695	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R696	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R697	QRSA08J-333YN	RESISTOR	33kΩ,1/10W
R698	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
R700	QRD161J-471	RESISTOR	470Ω,1/6W
R701	QRSA08J-101YN	RESISTOR	100Ω,1/10W
R702	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R703	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R704	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R705	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R706	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R707	QRSA08J-103YN	RESISTOR,J620EK	10kΩ,1/10W
R708	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R709	QRSA08J-104YN	RESISTOR,J620EK	100kΩ,1/10W
R801	QRD161J-334	RESISTOR	330kΩ,1/6W
R802	QRD161J-334	RESISTOR	330kΩ,1/6W
R803	QRD161J-683	RESISTOR	68kΩ,1/6W
R804	QRG029J-331A	OMF RESISTOR	330Ω,2W
R805	QRX014J-R39Z	MF RESISTOR	0.39Ω,1W
R806	QRD161J-821	RESISTOR	820Ω,1/6W
R807	QRD161J-122	RESISTOR	1.2kΩ,1/6W
R808	QRG029J-683G	OMF RESISTOR	68kΩ,2W
R851	QRD161J-102	RESISTOR	1kΩ,1/6W
R852	QRV144F-3740AY	CMF RESISTOR	374Ω,1/4W
R853	QRV144F-4870AY	CMF RESISTOR	487Ω,1/4W
R854	QRD161J-122	RESISTOR	1.2kΩ,1/6W
R855	QRG02DJ-471X	OMF RESISTOR	470Ω,2W
R857	QRG02DJ-681X	OMF RESISTOR	680Ω,2W
R858	QRD161J-471	RESISTOR	470Ω,1/6W
R859	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
R860	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R861	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R863	QRD161J-511	RESISTOR	510Ω,1/6W
R864	QRD161J-471	RESISTOR	470Ω,1/6W
R865	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R866	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
R867	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R868	QRSA08J-222YN	RESISTOR	2.2kΩ,1/10W
R870	QRG01DJ-150X	MF RESISTOR	15Ω,1W
R872	QRSA08J-221YN	RESISTOR	220Ω,1/10W
R875	QRSA08J-562YN	RESISTOR	5.6kΩ,1/10W
R878	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R901	QRSA08J-152YN	RESISTOR	1.5kΩ,1/10W
R902	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R903	QRSA08J-331YN	RESISTOR	330Ω,1/10W
R905	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R906	QRSA08J-182YN	RESISTOR	1.8kΩ,1/10W
R907	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
R908	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
R909	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R910	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
R911	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R912	QRSA08J-0R0Y	RESISTOR	0Ω,1/10W
R918	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
R919	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
R930	QRSA08J-103YN	RESISTOR,J625EK	10kΩ,1/10W
R936	QRSA08J-153YN	RESISTOR,J625EK	15kΩ,1/10W
C1	QCYA1HK-222	CAPACITOR	0.0022μF,50V
C2	QETF1CM-476	E CAPACITOR	47μF,16V
C3	QETF1CM-106	E CAPACITOR	10μF,16V
C4	QETC1HM-105	E CAPACITOR	1μF,50V
C5	QCC11EJ-153	CAPACITOR	0.015μF,25V
C6	QCC11EJ-223	CAPACITOR	0.022μF,25V
C8	QETF1CM-106	E CAPACITOR	10μF,16V
C9	QCYA1HK-223	CAPACITOR	0.022μF,50V
C10	QCYA1HK-223	CAPACITOR	0.022μF,50V
C11	QETF1AM-226	E CAPACITOR	22μF,10V
C12	QCYA1HK-223	CAPACITOR	0.022μF,50V
C13	QCYA1HK-123	CAPACITOR	0.012μF,50V
C14	QETF1AM-336	E CAPACITOR	33μF,10V
C15	QETF1EM-475	E CAPACITOR	4.7μF,25V
C16	QCYA1HK-681	CAPACITOR	680pF,50V
C17	QCYA1HK-223	CAPACITOR	0.022μF,50V
C18	QCYA1HK-472	CAPACITOR	0.0047μF,50V
C19	QFLC1HJ-823Z	F CAPACITOR	0.082μF,50V
C20	QETF1CM-106	E CAPACITOR	10μF,16V
C21	QCYA1HK-331	CAPACITOR	330pF,50V
C26	QCYA1HK-681	CAPACITOR	680pF,50V
C101	QETC1CM-106	E CAPACITOR	10μF,16V
C103	QETC1CM-106	E CAPACITOR	10μF,16V
C104	QETF1AM-336	E CAPACITOR	33μF,10V
C105	QCYA1CK-473	CAPACITOR	0.047μF,16V
C106	QETF1CM-106	E CAPACITOR	10μF,16V
C107	QETF0JM-107	E CAPACITOR	100μF,6.3V
C108	QCYA1HK-153	CAPACITOR	0.015μF,50V
C109	QCYA1HK-103	CAPACITOR	0.01μF,50V
C110	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C114	QCYA1HK-103	CAPACITOR	0.01μF,50V
C115	QCYA1HK-103	CAPACITOR	0.01μF,50V
C116	QCYA1CK-473	CAPACITOR	0.047μF,16V
C117	QEKF1HM-224	E CAPACITOR	0.22μF,50V
C118	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C119	QCYA1HK-103	CAPACITOR	0.01μF,50V
C120	QEKF0JM-107	E CAPACITOR	100μF,6.3V
C121	QCYA1HK-153	CAPACITOR	0.015μF,50V
C122	QEKF0JM-107	E CAPACITOR	100μF,6.3V
C123	QEKF1CM-106	E CAPACITOR	10μF,16V
C124	QCYA1CK-473	CAPACITOR	0.047μF,16V
C125	QEKF1AM-336	E CAPACITOR	33μF,10V
C126	QETF1CM-106	E CAPACITOR	10μF,16V
C128	QETF1CM-106	E CAPACITOR	10μF,16V
C129	QETF1CM-106	E CAPACITOR	10μF,16V
C131	QETF1CM-476	E CAPACITOR	47μF,16V
C132	QETF1HM-105	E CAPACITOR	1μF,50V
C133	QETF1AM-476	E CAPACITOR	47μF,10V
C134	QETC1AM-476	E CAPACITOR	47μF,10V
C135	QETC1AM-476	E CAPACITOR	47μF,10V
C136	QETF0JM-107	E CAPACITOR	100μF,6.3V
C137	QETC1CM-106	E CAPACITOR	10μF,16V
C138	QETF1HM-105	E CAPACITOR	1μF,50V
C139	QETF1HM-105	E CAPACITOR	1μF,50V
C140	QEKF1AM-336	E CAPACITOR	33μF,10V
C141	QEKF1AM-336	E CAPACITOR	33μF,10V
C201	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C202	QCSA1HJ-330	CAPACITOR	33pF,50V
C203	QCFA1CZ-474	CAPACITOR	0.47μF,16V
C204	QCFA1CZ-474	CAPACITOR	0.47μF,16V
C205	QCFA1CZ-105	CAPACITOR	1μF,16V
C206	QEKF1EM-475	E CAPACITOR	4.7μF,25V
C207	QEKF1EM-475	E CAPACITOR	4.7μF,25V
C209	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C210	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C211	QCSA1HJ-221	CAPACITOR	220pF,50V
C213	QCSA1HG-821	CAPACITOR	820pF,50V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C215	QCSA1HJ-181	CAPACITOR	180pF,50V
C216	QEKF1AM-226	E CAPACITOR	22μF,10V
C218	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C219	QCSA1HJ-220	CAPACITOR	22pF,50V
C221	QCSA1HJ-680	CAPACITOR	68pF,50V
C222	QCSA1HJ-181	CAPACITOR	180pF,50V
C223	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C224	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C225	QCSB1HJ-100	CAPACITOR	10pF,50V
C226	QEKF1HM-225	E CAPACITOR	2.2μF,50V
C227	QCYA1EK-223	CAPACITOR	0.022μF,25V
C228	QEKF1EM-475	E CAPACITOR	4.7μF,25V
C229	QCYA1HK-222	CAPACITOR	0.0022μF,50V
C230	QEKF1HM-105	E CAPACITOR	1μF,50V
C231	QCTA1CH-680	CAPACITOR	68pF,16V
C232	QCYA1EK-104	CAPACITOR	0.1μF,25V
C233	QCSA1HJ-560	CAPACITOR	56pF,50V
C234	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C235	QEPF1HM-474	NP E CAPACITOR	0.47μF,50V
C236	QEKF1EM-475	E CAPACITOR	4.7μF,25V
C237	QEKF1EM-475	E CAPACITOR	4.7μF,25V
C238	QCFA1CZ-474	CAPACITOR	0.47μF,16V
C239	QEKF1EM-475	E CAPACITOR	4.7μF,25V
C240	QCYA1HK-333	CAPACITOR	0.033μF,50V
C243	QCYA1EK-104	CAPACITOR	0.1μF,25V
C244	QCSA1HJ-681	CAPACITOR	680pF,50V
C245	QCYA1HK-103	CAPACITOR	0.01μF,50V
C246	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C247	QCVB1CN-103	CAPACITOR	0.01μF,16V
C248	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C249	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C250	QCYA1EK-473	CAPACITOR	0.047μF,25V
C251	QEKF1HM-105	E CAPACITOR	1μF,50V
C252	QEKF1HM-105	E CAPACITOR	1μF,50V
C253	QCYA1EK-104	CAPACITOR	0.1μF,25V
C257	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C258	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C259	QEKF1HM-105	E CAPACITOR	1μF,50V
C260	QCFA1CZ-474	CAPACITOR	0.47μF,16V
C261	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C262	QEKF1CM-106	E CAPACITOR	10μF,16V
C263	QCYA1HK-103	CAPACITOR	0.01μF,50V
C264	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C265	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C266	QCYA1HK-472	CAPACITOR	0.0047μF,50V
C268	QCYA1EK-104	CAPACITOR	0.1μF,25V
C271	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C272	QCFA1HZ-103	CAPACITOR	0.01μF,50V
C273	QEKF0JM-107	E CAPACITOR	100μF,6.3V
C274	QEKF0JM-107	E CAPACITOR	100μF,6.3V
C278	QCYA1HK-103	CAPACITOR	0.01μF,50V
C279	QCSA1HJ-470	CAPACITOR	47pF,50V
C291	QCSB1HJ-680	CAPACITOR	68pF,50V
C292	QCSB1HJ-150	CAPACITOR	15pF,50V
C401	QCYA1HK-102	CAPACITOR	0.001μF,50V
C403	QCYA1HK-102	CAPACITOR	0.001μF,50V
C404	QCYA1EK-563	CAPACITOR	0.056μF,25V
C405	QCSA1HJ-101	CAPACITOR	100pF,50V
C406	QCYA1HK-103	CAPACITOR	0.01μF,50V
C407	QEKF1CM-106	E CAPACITOR	10μF,16V
C408	QEKF1CM-106	E CAPACITOR	10μF,16V
C409	QEKF0JM-107	E CAPACITOR	100μF,6.3V
C410	QCYA1CK-104	CAPACITOR	0.1μF,16V
C413	QEKF1HM-105	E CAPACITOR	1μF,50V
C414	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C415	QCYA1EK-123	CAPACITOR	0.012μF,25V
C416	QCBB1HJ-102	CAPACITOR	0.001μF,50V
C417	QCBB1HJ-470	CAPACITOR	47pF,50V
C601	QAT3120-450Z	TRIM CAPACITOR ,TIMER CLOCK	
C602	QCTA1CH-180	CAPACITOR	18pF,16V
C603	QCYA1HK-103	CAPACITOR	0.01μF,50V
C604	QEKF1CM-106	E CAPACITOR	10μF,16V
C609	QCYA1CK-104	CAPACITOR	0.1μF,16V
C612	QCBB1HK-102	CAPACITOR	0.001μF,50V
C615	QCYA1HK-103	CAPACITOR	0.01μF,50V
C617	QEKF1AM-336	E CAPACITOR	33μF,10V
C619	QETN0JM-228E	E CAPACITOR	2200μF,6.3V
C627	QCYA1HK-103	CAPACITOR	0.01μF,50V
C628	QERF0JM-107	E CAPACITOR	100μF,6.3V
C630	QEKF1CM-106	E CAPACITOR	10μF,16V
C631	QCYA1HK-103	CAPACITOR	0.01μF,50V
C636	QCFA1EZ-104	CAPACITOR	0.1μF,25V
C638	QETA1EM-107	E CAPACITOR	100μF,25V
⚠ C801	QFZ9022-683	F CAPACITOR	0.068μF
⚠ C803	QFZ9022-333	F CAPACITOR	0.033μF
C806	QETC1HM-225	E CAPACITOR	2.2μF,50V
C808	QFV11HJ-104AZ	F CAPACITOR	0.1μF,50V
C810	PECA0793-686	E CAPACITOR	68μF,400V
⚠ C811	QCZ9026-222	CAPACITOR	0.0022μF
C815	QFLA1HJ-123Z	F CAPACITOR	0.012μF,50V
C816	QCBB1HJ-121	CAPACITOR	120pF,50V
C817	QCZ0212-472	CAPACITOR	0.0047μF,1kV
C851	QEMR1AM-107	E CAPACITOR	100μF,10V
C853	QEM91AM-687	E CAPACITOR	680μF,10V
C854	QEM91CM-827	E CAPACITOR	820μF,16V
C855	QEMN1EM-187	E CAPACITOR	180μF,25V
C856	QFN31HJ-152	F CAPACITOR	0.0015μF,50V
C857	QFLC1HJ-472Z	F CAPACITOR	0.0047μF,50V
C859	QETC1HM-226	E CAPACITOR	22μF,50V
C860	QETC1JM-226	E CAPACITOR	22μF,63V
C861	QFLC1HJ-103Z	F CAPACITOR	0.01μF,50V
C862	QFLA1HJ-102Z	F CAPACITOR	0.001μF,50V
C863	QETC0JM-107	E CAPACITOR	100μF,6.3V
C864	QETC0JM-226	E CAPACITOR	22μF,6.3V
C866	QETC1CM-106	E CAPACITOR	10μF,16V
C868	QETC1CM-476	E CAPACITOR	47μF,16V
C869	QETC1HM-474	E CAPACITOR	0.47μF,50V
C870	QETC1CM-107	E CAPACITOR	100μF,16V
C901	QETF1CM-336	E CAPACITOR	33μF,16V
C902	QCYA1HK-102	CAPACITOR	0.001μF,50V
C903	QETF1HM-106	E CAPACITOR	10μF,50V
C904	QCYA1HK-102	CAPACITOR	0.001μF,50V
C905	QCYA1HK-223	CAPACITOR	0.022μF,50V
C906	QETF1HM-474	E CAPACITOR	0.47μF,50V
C950	QCTA1CH-221	CAPACITOR	220pF,16V
C953	QCYA1HK-103	CAPACITOR	0.01μF,50V
C959	QETF1CM-476	E CAPACITOR	47μF,16V
L1	PU58308-123J	COIL	12mH
L202	PU59152-220J	COIL	22μH
L203	PU59152-470J	COIL	47μH
L204	PU59152-820J	COIL	82μH
L205	PU59152-151J	COIL	150μH
L206	PU59152-100J	COIL	10μH
L207	PU59153-101K	COIL	100μH

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	L210	PU48530-561J	COIL	560μH
	L282	PELN1036-241Y	FERRATE BEADS	
	L283	PELN1036-241Y	FERRATE BEADS	
	L284	PU59152-R56J	COIL	0.56μH
	L401	PU59152-270J	COIL	27μH
	L501	PU59152-R22J	COIL	0.22μH
	L603	PU48530-100K	COIL	10μH
	L851	PELN0695-330K	COIL	33μH
	L853	PELN0695-330K	COIL	33μH
	L902	PU59152-R22J	COIL	0.22μH
⚠	CF601	PEVB0594-Z	RESONATOR	
⚠	X201	PEVB0617	CRYSTAL RESONATOR	
⚠	X601	PEVB0422	CRYSTAL RESONATOR	
	SW501	PESW0672-02	SLIDE SWITCH,RF/TEST	
⚠	T1	PELN0832	OSC TRANSFORMER	
	K281	PELN0662	FERRATE BEADS	
	K801	PELN0662-Z	FERRATE BEADS	
	K851	PELN0662-Z	FERRATE BEADS	
⚠	PC801	PS2561L-1(WL)	PH COUPLER	
	PS601	PU61433	REEL SENSOR	
	PS602	PU61433	REEL SENSOR	
⚠	T801	PELN1065	SW TRANS	
	T901	PELN0806	COIL	
	BKT1	PQ35314A-2	TRANS BRACKET ASSEMBLY	
	ETH1	PQ21623-1-2	EARTH PLATE(RF)	
		PQ46451	ARTH PLATE,PRE	
⚠	HS1	PQ45788-1-1	HEAT SINK	
	SCW1	SDSF3008Z	SCREW	
	SCW2	SDST3006Z	SCREW	
	SPC1	PEME0947-01-01	SPACER,X2	
⚠	FC801	PEMC0965-Z	FUSE CLIP,F801	
⚠	FC802	PEMC0965-Z	FUSE CLIP,F801	
	JA502	PEMC1066	DIN CONNECTOR,VPS/PDC	
	JA503	PU60612	MINI JACK,R PAUSE	
⚠	LF801	PELN0885	LINE FILTER	
⚠	LF802	PELN0876	LINE FILTER	
	CN1	PU60727-7	CONNECTOR,(1-7)A/C HEAD	
	CN2	PU60727-2	CONNECTOR,(1-2)FE HEAD	
	CN201	PEMC1055-012	CONNECTOR,(1-12)PRE/REC	
	CN202	PEMC1055-010	CONNECTOR,(1-10)PRE/REC	
	CN402	PEMC1102-004	CONNECTOR,(1-4)DRUM MOTOR	
	CN501	PEMC1122-108	CONNECTOR,(8-15)TERMINAL	
	CN502	PEMC1122-115	CONNECTOR,(1-15)TERMINAL	
	CN601	PEMC1077	CONNECTOR,(1-8)CAP MDA	
	CN602	PU61434-1-1	CONNECTOR,(1-5)ROTARY ENCORDE	
	CN603	PU60727-2	CONNECTOR,(1-2)LOADING MOTOR	
	CN605	PU59555-8	CONNECTOR,(1-8)JOG/SHUTTLE	
	CN702	PEMC1102-011	CONNECTOR,(3-13)DISPLAY/SW	
	CN703	PEMC1119-002	PIN HEADER,BACK UP	
	CN751	PEMC1079-008	CONNECTOR,(1-8) ATS+ J625EK	
⚠	CN801	PU60250-2	CONNECTOR,(1-2)AC IN	
⚠	CP401	ICP-N15	CIRCUIT PROTECTOR	
⚠	CP601	ICP-N25	CIRCUIT PROTECTOR	
⚠	CP801	ICP-N20	CIRCUIT PROTECTOR	
⚠	CP802	ICP-N25	CIRCUIT PROTECTOR	
⚠	F801	QMF51E2-1R25J1	FUSE	T1.2A

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	

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TERMINAL BOARD ASSEMBLY <06>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10947A1-01	TERMINAL BOARD ASSY,J620EK	
		PB10947D1-01	TERMINAL BOARD ASSE,J625EK	
	Q201	2SA1576(QRS)	TRANSISTOR	
	Q202	2SA1576(QRS)	TRANSISTOR	
	Q204	DTA114EU	TRANSISTOR	
		or UN5211	TRANSISTOR	
	Q701	2SA1576(QRS)	TRANSISTOR	
	Q703	DTC124EU	TRANSISTOR	
		or UN5212	TRANSISTOR	
	R1	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R2	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R201	QRD123J-391S	RESISTOR	390Ω,1/2W
	R202	QRD161J-750	RESISTOR	75Ω,1/6W
	R203	QRSA08J-153YN	RESISTOR	15kΩ,1/10W
	R204	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R205	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R206	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R209	QRSA08J-750YN	RESISTOR	75Ω,1/10W
	R210	QRSA08J-750YN	RESISTOR	75Ω,1/10W
	R211	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R701	QRSA08J-393YN	RESISTOR	39kΩ,1/10W
	R702	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R703	QRD123J-331S	RESISTOR	330Ω,1/2W
	C31	QCYA1HK-561	CAPACITOR	560pF,50V
	C32	QCYA1HK-561	CAPACITOR	560pF,50V
	C33	QCYA1HK-561	CAPACITOR	560pF,50V
	C34	QCYA1HK-561	CAPACITOR	560pF,50V
	C35	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C36	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C37	QCYA1HK-561	CAPACITOR	560pF,50V
	C38	QCYA1HK-561	CAPACITOR	560pF,50V
	C201	QETA0JM-477	E CAPACITOR	470μF,6.3V
	C203	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C204	QETA1CM-337	E CAPACITOR	330μF,16V
	L31	PU59152-4R7J	COIL	4.7μH
	L32	PU59152-4R7J	COIL	4.7μH
	L33	PU59152-3R3J	COIL	3.3μH
	L34	PU59152-3R3J	COIL	3.3μH
	L35	PU59152-3R3J	COIL	3.3μH
	L36	PU59152-3R3J	COIL	3.3μH
	L37	PU59152-R33J	COIL	0.33μH
	L38	PU59152-3R3J	COIL	3.3μH
	L39	PU59152-3R3J	COIL	3.3μH
	L40	PU59152-1R0J	COIL	1μH
	L44	PU59152-R33J	COIL	0.33μH
	SCW1	SDSF3008Z	SCREW,X5 TERMINAL BOARD	
	TB1	PQ35368A	TERMINAL BOARD ASSY,J620EK	
		PQ35368E	TERMINAL BOARD ASSY,J625EK	
	JA701	PEMC1019	RGB21PIN SOCKET,AV1	
	JA702	PEMC1019	RGB21PIN SOCKET,AV2/DEC	
	JA703	PEMC1009-03	PIN JACK,A OUT(L)	
	JA704	PEMC1009-02	PIN JACK,A OUT(R)	
	CN701	PEMC0970-208	CONNECTOR,(8-15)MAIN	
	CN702	PEMC0970-215	CONNECTOR,(1-15)MAIN	

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	

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AUDIO/CONTROL HEAD BOARD ASSY <12>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB40068A	A/CTL HEAD BOARD ASSEMBLY	
	CN1	PU60910-107	CONNECTOR,(1-7)MAIN	

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DEMOD BOARD ASSEMBLY <14>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10832A-02	DEMOD BOARD ASSEMBLY	
	IC1	CF70088A	IC	
	IC2	TDA1305T-XE	IC	
	IC3	LA7151	IC	
	Q1	IMX3	TRANSISTOR	
	Q2	2SC4081(RS)	TRANSISTOR	
	Q4	3SK181(5)	FE TRANSISTOR	
	Q5	2SC4081(RS)	TRANSISTOR	
	Q6	IMX3	TRANSISTOR	
	Q7	DTC144EU	TRANSISTOR	
	Q8	DTA114EU	TRANSISTOR	
	D1	DAN202U	DIODE	
	D2	DAN202U	DIODE	
	R1	QRSA08J-822YN	RESISTOR	8.2kΩ,1/10W
	R2	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
	R3	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R4	QRSA08J-121YN	RESISTOR	120Ω,1/10W
	R5	QRSA08J-221YN	RESISTOR	220Ω,1/10W
	R6	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R7	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R8	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R9	QRSA08J-102YN	RESISTOR	1kΩ,1/10W
	R13	QRSA08J-681YN	RESISTOR	680Ω,1/10W
	R14	QRSA08J-224YN	RESISTOR	220kΩ,1/10W
	R15	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
	R16	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
	R17	QRSA08J-271YN	RESISTOR	270Ω,1/10W
	R18	QRSA08J-273YN	RESISTOR	27kΩ,1/10W
	R19	QRSA08J-303YN	RESISTOR	30kΩ,1/10W
	R20	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R21	QRSA08J-154YN	RESISTOR	150kΩ,1/10W
	R22	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
	R23	QRSA08J-104YN	RESISTOR	100kΩ,1/10W
	R26	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R27	QRSA08J-331YN	RESISTOR	330Ω,1/10W
	R28	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R31	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R32	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R33	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R34	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R35	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
	R36	QRSA08J-223YN	RESISTOR	22kΩ,1/10W
	R51	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R52	QRSA08J-473YN	RESISTOR	47kΩ,1/10W
	R53	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R54	QRSA08J-471YN	RESISTOR	470Ω,1/10W
	R55	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R56	QRSA08J-472YN	RESISTOR	4.7kΩ,1/10W
	R57	QRSA08J-103YN	RESISTOR	10kΩ,1/10W
	R61	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	R62	QRSA08J-101YN	RESISTOR	100Ω,1/10W
	C1	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C2	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C3	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C4	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C6	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C7	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C8	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C9	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C10	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C11	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C12	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C16	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C17	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C18	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C19	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C20	QCTA1CH-330	CAPACITOR	33pF,16V
	C21	QCSA1HJ-102	CAPACITOR	0.001μF,50V
	C22	QCSA1HJ-471	CAPACITOR	470pF,50V
	C23	QEKF1CM-106	E CAPACITOR	10μF,16V
	C24	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C25	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C26	QEKF0JM-476	E CAPACITOR	47μF,6.3V
	C27	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C28	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C29	QEKF0JM-476	E CAPACITOR	47μF,6.3V
	C30	QEKF1HM-225	E CAPACITOR	2.2μF,50V
	C31	QCSA1HJ-102	CAPACITOR	0.001μF,50V
	C32	QCSA1HJ-102	CAPACITOR	0.001μF,50V
	C33	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C34	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C35	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C36	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C37	QEKF0JM-476	E CAPACITOR	47μF,6.3V
	C39	QFLA1HJ-823Z	F CAPACITOR	0.082μF,50V
	C40	QFLA1HJ-823Z	F CAPACITOR	0.082μF,50V
	C41	QEKF1CM-106	E CAPACITOR	10μF,16V
	C42	QEKF1CM-106	E CAPACITOR	10μF,16V
	C43	QEKF1CM-106	E CAPACITOR	10μF,16V
	C44	QEKF1CM-106	E CAPACITOR	10μF,16V
	C45	QCYA1HK-103	CAPACITOR	0.01μF,50V
	C61	QEKF1CM-106	E CAPACITOR	10μF,16V
	C62	QEKF1CM-106	E CAPACITOR	10μF,16V
	C63	QEKF1CM-226	E CAPACITOR	22μF,16V
	C64	QEKF1CM-106	E CAPACITOR	10μF,16V
	C71	QCSA1HJ-330	CAPACITOR	33pF,50V
	C72	QCSA1HJ-330	CAPACITOR	33pF,50V
	C73	QCSA1HJ-101	CAPACITOR	100pF,50V
	C74	QCSA1HJ-101	CAPACITOR	100pF,50V
	C75	QCSA1HJ-101	CAPACITOR	100pF,50V
	C76	QCSA1HJ-101	CAPACITOR	100pF,50V
	C77	QCSA1HJ-101	CAPACITOR	100pF,50V
	L2	PU59152-220J	COIL	22μH
	CF1	PEVB0556	C TRAP	
	LC1	PU59736-102	N FILTER	
	LC2	PU59736-102	N FILTER	
⚠	X1	PEVB0573	CRYSTAL RESONATOR	
	JP1	PEMC0778-109	PIN HEADER	
	JP2	PEMC0778-105	PIN HEADER	

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION
SLD1	PQ35058	SHIELD COVER,X2
SLD2	PQ35057	SHIELD FRAME

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SW/DISPLAY BOARD ASSEMBLY <28>

PWBA1	PB10925A1	DISPLAY BOARD ASSY,J620EK	
	PB10925G1	DISPLAY BOARD ASSY,J625EK	
IC1	UPD16311GC(P)	IC	
	or UPD16311GC(K)	IC	
	or UPD16311GC(E)	IC	
IC2	GP1U581X	IR DETECT UNIT	
	or HC-377J	IR DETECT UNIT	
D1	1N4148M	DIODE	
	or 1SS132Y	DIODE	
D2	1N4148M	DIODE	
	or 1SS132Y	DIODE	
D4	1N4148M	DIODE	
	or 1SS132Y	DIODE	
D5	1N4148M	DIODE	
	or 1SS132Y	DIODE	
D6	1N4148M	DIODE	
	or 1SS132Y	DIODE	
D7	1N4148M	DIODE,SP/LP	
	or 1SS132Y	DIODE,SP/LP	
D11	RD4.7ES-T1B2	ZENER DIODE	
D12	SLR-342VR3F	LE DIODE,OPERETE	
D15	1N4148M	DIODE	
	or 1SS132Y	DIODE	
D18	SLR-342DC3F	LE DIODE,REVIEW	
D30	11ES2	DIODE	
R1	QRD161J-333	RESISTOR	33kΩ,1/6W
R2	QRD161J-333	RESISTOR	33kΩ,1/6W
R3	QRD161J-333	RESISTOR	33kΩ,1/6W
R4	QRD161J-333	RESISTOR	33kΩ,1/6W
R5	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R6	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R7	QRD161J-102	RESISTOR	1kΩ,1/6W
R8	QRD161J-563	RESISTOR	56kΩ,1/6W
R9	QRD161J-103	RESISTOR	10kΩ,1/6W
R10	QRD161J-103	RESISTOR	10kΩ,1/6W
R11	QRD161J-331	RESISTOR	330Ω,1/6W
R13	QRD161J-333	RESISTOR	33kΩ,1/6W
R15	QRD161J-103	RESISTOR	10kΩ,1/6W
R16	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R18	QRD161J-331	RESISTOR	330Ω,1/6W
RA1	QRB045J-333F	RESISTOR ARRAY	33kΩ,4W
C1	QETF0JM-336	E CAPACITOR	33μF,6.3V
C2	QCFB1HZ-104	CAPACITOR	0.1μF,50V
C3	QETF1HM-106	E CAPACITOR	10μF,50V
C4	QCSB1HJ-330	CAPACITOR	33pF,50V
C5	QCSB1HJ-330	CAPACITOR	33pF,50V
C6	QEKF0JM-227	E CAPACITOR	220μF,6.3V
C10	QCC11EJ-473	CAPACITOR	0.047μF,25V
C11	QCC11EJ-473	CAPACITOR	0.047μF,25V
C12	QEKF0JM-107	E CAPACITOR	100μF,6.3V
S5	PESW0525-02Z	TACT SWITCH,PAUSE	
S6	PESW0525-02Z	TACT SWITCH,REC/ITR	
S7	PESW0525-02Z	TACT SWITCH,PLAY	
S8	PESW0525-02Z	TACT SWITCH,STOP/EJECT	
S14	PESW0525-02Z	TACT SWITCH,SP/LP	
S15	PESW0525-02Z	TACT SWITCH,STORE	
S16	PESW0525-02Z	TACT SWITCH,CH SEARCH	
S23	PESW0525-02Z	TACT SWITCH,HIFI/N/MIX	
S24	PESW0525-02Z	TACT SWITCH,REVIEW	
FDP1	PEDP0106-03	FLUORESCENT DISPLAY PANEL	
HD1	PQM30038-6	LED HOLDER,D12	
HD2	PQM30038-1-2	LED HOLDER,D18	
HD3	PQ34668	FDP HOLDER(L)	
HD4	PQ34669	FDP HOLDER(R)	
J1	PW30101-60AA442	PARALLEL WIRE,REC SAFETY	
J2	PW30101-60AA442	PARALLEL WIRE,CASS SW	
CN1	PEMC1101-111	CONNECTOR,(1-11)MAIN	
CN2	PEMC0724-006	CONNECTOR,(4-9)SW/JACK	

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REC SAFETY BOARD ASSEMBLY <32>

PWBA3	PB10925A3	REC SAFETY BOARD ASSY,J620EK
	PB10925G3	REC SAFETY BOARD ASSY,J625EK
S41	PESW0589	PUSH SWITCH

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CASSETTE SW. BOARD ASSEMBLY <33>

00468	PB10925G4	CASSETTE SW BOARTD ASSY,J625EK
PWBA4	PB10925A4	CASSETTE SW BOARD ASSY,J620EK
S42	PU61320	PUSH SWITCH

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SW/JACK BOARD ASSEMBLY <36>

PWBA2	PB10925A2	SW/JACK BOARD ASSY,J620EK
	PB10925G2	SW/JACK BOARD ASSY,J625EK
S1	PESW0525-02Z	TACT SWITCH,CH+
S2	PESW0525-02Z	TACT SWITCH,CH-
S3	PESW0525-02Z	TACT SWITCH,OPERATE
S4	PESW0525-02Z	TACT SWITCH,TIMER
S21	PESW0525-02Z	TACT SWITCH,S FINDER
CN3	PEMC0723-006	CONNECTOR,(4-9)DISPLAY/SW

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PRE/REC AMP BOARD ASSEMBLY <43>

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
PWBA	PB10935B	PRE/REC BOARD ASSEMBLY	
IC101	AN3389SBNS-XE	IC	
	or AN3389SB-XE	IC	
IC201	BA7746FS-XE	IC	
Q1	2SC4081(QRS)	TRANSISTOR	
Q2	2SA1576(QRS)	TRANSISTOR	
Q3	2SC4081(QRS)	TRANSISTOR	
Q4	2SC4081(QRS)	TRANSISTOR	
Q5	DTA124EU	TRANSISTOR	
Q9	DTC144WU	TRANSISTOR	
Q10	DTA124EU	TRANSISTOR	
Q201	2SC4998	TRANSISTOR	
Q202	DTC144WU	TRANSISTOR	
	or UN521K	TRANSISTOR	
Q203	DTC144WU	TRANSISTOR	
	or UN521K	TRANSISTOR	
D1	1SS133	DIODE	
	or 1N4148M	DIODE	
	or MA165	DIODE	
D101	1SS133	DIODE	
	or MA165	DIODE	
	or 1N4148M	DIODE	
D103	DAN202U	DIODE	
	or MA141WK	DIODE	
D201	1N4148M	DIODE	
	or 1SS133	DIODE	
	or MA165	DIODE	
R1	NRSA63J-152N	RESISTOR	1.5kΩ,1/16W
R2	NRSA63J-122N	RESISTOR	1.2kΩ,1/16W
R3	NRSA63J-132N	RESISTOR	1.3kΩ,1/16W
R4	NRSA63J-562N	RESISTOR	5.6kΩ,1/16W
R6	NRSA63J-681N	RESISTOR	680Ω,1/16W
R11	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R12	QRD161J-561	RESISTOR	560Ω,1/6W
R13	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
R14	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
R15	NRSA63J-391N	RESISTOR	390Ω,1/16W
R16	NRSA63J-391N	RESISTOR	390Ω,1/16W
R17	NRSA63J-821N	RESISTOR	820Ω,1/16W
R18	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
R19	QRD161J-222	RESISTOR	2.2kΩ,1/6W
R20	NRSA63J-821N	RESISTOR	820Ω,1/16W
R21	NRSA63J-152N	RESISTOR	1.5kΩ,1/16W
R22	NRSA63J-122N	RESISTOR	1.2kΩ,1/16W
R23	NRSA63J-561N	RESISTOR	560Ω,1/16W
R24	QRSA08J-122YN	RESISTOR	1.2kΩ,1/10W
R25	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R26	NRSA63J-0R0N	RESISTOR	0Ω,1/16W
R32	NRSA63J-101N	RESISTOR	100Ω,1/16W
R33	NRSA63J-821N	RESISTOR	820Ω,1/16W
R35	NRSA63J-181N	RESISTOR	180Ω,1/16W
R101	NRVA63D-393N	RESISTOR	39kΩ,1/16W
R102	QRD161J-334	RESISTOR	330kΩ,1/6W
R103	NRSA63J-224N	RESISTOR	220kΩ,1/16W
R107	NRSA63J-271N	RESISTOR	270Ω,1/16W
R108	NRSA63J-221N	RESISTOR	220Ω,1/16W
R109	NRSA63J-271N	RESISTOR	270Ω,1/16W
R110	NRSA63J-301N	RESISTOR	300Ω,1/16W
R111	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
R112	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R113	QRD161J-332	RESISTOR	3.3kΩ,1/6W
R114	QRD161J-182	RESISTOR	1.8kΩ,1/6W
R201	NRSA63J-152N	RESISTOR	1.5kΩ,1/16W
R202	NRSA63J-471N	RESISTOR	470Ω,1/16W
R203	NRSA63J-471N	RESISTOR	470Ω,1/16W
R204	NRSA63J-152N	RESISTOR	1.5kΩ,1/16W
R205	NRSA63J-681N	RESISTOR	680Ω,1/16W
R206	QRD161J-130	RESISTOR	13Ω,1/6W
R207	QRD161J-224	RESISTOR	220kΩ,1/6W
R208	QRD161J-391	RESISTOR	390Ω,1/6W
R209	QRD161J-222	RESISTOR	2.2kΩ,1/6W
R212	NRSA63J-222N	RESISTOR	2.2kΩ,1/16W
R213	NRSA63J-104N	RESISTOR	100kΩ,1/16W
R215	QRD161J-562	RESISTOR	5.6kΩ,1/6W
R216	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R218	NRSA63J-102N	RESISTOR	1kΩ,1/16W
R219	NRSA63J-563N	RESISTOR	56kΩ,1/16W
R220	NRSA63J-103N	RESISTOR	10kΩ,1/16W
R221	NRSA63J-103N	RESISTOR	10kΩ,1/16W
C1	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C2	NCS31HJ-680A	CAPACITOR	68pF,50V
C3	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C6	NCB31HK-102A	CAPACITOR	0.001μF,50V
C7	NCS31HJ-681A	CAPACITOR	680pF,50V
C8	NCS31HJ-100A	CAPACITOR	10pF,50V
C9	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C10	NCS31HJ-330A	CAPACITOR	33pF,50V
C11	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C13	QCSA1HJ-150	CAPACITOR	15pF,50V
C14	NCS31HJ-100A	CAPACITOR	10pF,50V
C15	NCS31HJ-471A	CAPACITOR	470pF,50V
C31	QEKF0JM-476	E CAPACITOR	47μF,6.3V
C32	NCB31CK-333A	CAPACITOR	0.033μF,16V
C34	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C35	NCS31HJ-390A	CAPACITOR	39pF,50V
C36	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C40	NCS31HJ-101A	CAPACITOR	100pF,50V
C46	NCS31HJ-330A	CAPACITOR	33pF,50V
C101	NCB31CK-104A	CAPACITOR	0.1μF,16V
C102	QCVB1CN-103	CAPACITOR	0.01μF,16V
C103	NCS31HJ-391A	CAPACITOR	390pF,50V
C104	QCVB1CN-103	CAPACITOR	0.01μF,16V
C105	NCB31CK-104A	CAPACITOR	0.1μF,16V
C106	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C107	QCYA1HK-333	CAPACITOR	0.033μF,50V
C108	NCS31HJ-560A	CAPACITOR	56pF,50V
C109	NCS31HJ-560A	CAPACITOR	56pF,50V
C110	QCYA1HK-333	CAPACITOR	0.033μF,50V
C111	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C112	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C113	NCB31CK-333A	CAPACITOR	0.033μF,16V
C114	NCS31HJ-560A	CAPACITOR	56pF,50V
C115	NCS31HJ-680A	CAPACITOR	68pF,50V
C116	NCB31CK-333A	CAPACITOR	0.033μF,16V
C117	QCYA1EK-104	CAPACITOR	0.1μF,25V
C118	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C119	QCYA1EK-104	CAPACITOR	0.1μF,25V
C121	QEKF0JM-476	E CAPACITOR	47μF,6.3V
C201	NCF31CZ-104A	CAPACITOR	0.1μF,16V

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C202	NCB31HK-271A	CAPACITOR	270pF,50V
C203	NCB31HK-681A	CAPACITOR	680pF,50V
C204	NCB31HK-681A	CAPACITOR	680pF,50V
C205	NCB31HK-271A	CAPACITOR	270pF,50V
C206	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C207	NCB31HK-221A	CAPACITOR	220pF,50V
C208	QCC11CJ-104	CAPACITOR	0.1μF,16V
C209	QCC11CJ-473	CAPACITOR	0.047μF,16V
C211	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C212	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C213	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C214	QEK60JM-107	E CAPACITOR	100μF,6.3V
C215	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C216	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C217	NCF31CZ-104A	CAPACITOR	0.1μF,16V
C218	QCFA1EZ-224	CAPACITOR	0.22μF,25V
L1	PU59152-220J	COIL	22μH
L2	PU59152-560J	COIL	56μH
L3	PU59152-560J	COIL	56μH
L4	PU59152-270J	COIL	27μH
L5	PU59152-220J	COIL	22μH
L6	PU59152-121J	COIL	120μH
L32	PU59152-180J	COIL	18μH
L201	PELN0975-2R2JZ	COIL	2.2μH
BKT1	PQ21741-1-2	SHIELD FRAME,PRE	
CN1	PU59973-9	CONNECTOR,(1-9)UPPER DRUM	
CN2	PEMC1056-112	CONNECTOR,(1-12)MAIN	
CN3	PEMC1056-110	CONNECTOR,(1-10)MAIN	

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PDC BOARD ASSEMBLY(J625EK ONLY) <70>

PWBA	PB10925G5	PDC BOARD ASSEMBLY	
IC701	MV1822	IC	
Q701	DTC144ES	TRANSISTOR	
R702	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R703	QRD161J-221	RESISTOR	220Ω,1/6W
R704	QRD161J-221	RESISTOR	220Ω,1/6W
R708	QRD161J-473	RESISTOR	47kΩ,1/6W
C701	QCSB1HJ-560	CAPACITOR	56pF,50V
C702	QCSB1HJ-560	CAPACITOR	56pF,50V
C704	QFV21HJ-184	F CAPACITOR	0.18μF,50V
C706	QFV21HJ-184	F CAPACITOR	0.18μF,50V
C708	QCVB1CN-103	CAPACITOR	0.01μF,16V
C709	QETF1CM-476	E CAPACITOR	47μF,16V
C714	QFV21HJ-103	F CAPACITOR	0.01μF,50V
⚠ X701	PEVB0551	CRYSTAL RESONATOR	
CN701	PEMC1080-108	CONNECTOR,(1-8)MAIN	

SECTION 6
TECHNICAL INFORMATION

6.1 SYSCON CIRCUIT

6.1.1 Syscon CPU pin function (IC601) 1/2

PIN NO.	LABEL	IN/OUT	NOTE
1	A. LVL. R	IN	AUDIO INDICATOR LEVEL INPUT(Rch)
2	A. LVL. L	IN	AUDIO INDICATOR LEVEL INPUT(Lch)
3	IF AGC	IN	IF AGC DETECT
4	AVRG FM	IN	AUTO TRACKING DATA(AVRG VOLTAGE OF PB LEVEL INPUT)
5	AVSS	-	GND
6	TEST	-	GND
7	X2	-	TIMER CLOCK(32.768KHz)
8	X1	-	TIMER CLOCK(32.768KHz)
9	VSS	-	GND
10	OSC1	IN	SYSTEM CLOCK(10MHz)
11	OSC2	OUT	SYSTEM CLOCK(10MHz)
12	RESET	IN	RESET AT CONNECT VCR TO AC
13	(NMI)	-	NC
14	STTS	IN	LEADER TAPE DETECT(DETECT ON:L)
15	SHUTTLE	IN	SHUTTLE SWITCH
16	JSA	IN	JOG DIAL PULSE INPUT(A)
17	JSB	IN	JOG DIAL PULSE INPUT(A)
18	RECSF	IN	REC SAFETY SW DETECT (SW ON:L)
19	C. L. END	IN	CASSETTE TAPE LOAD SWITCH(CASSETTE IN:L)
20	LSB	IN	MECHANISM MODE DETECT(B)
21	LSA	IN	MECHANISM MODE DETECT(C)
22	TU FG	IN	TAKE-UP REEL ROTATION DET/TAPE REMAIN
23	SUP FG	IN	SUPPLY REEL ROTATION DET/TAPE REMAIN
24	LSC	IN	MECHANISM MODE DETECT(C)
25	M. CE	OUT	MEMORY IC CHIP ENABLE
26	SYNC DET	IN	SYNC DET(NO SYNC:H)
27	DAV	IN	VPS TRANSMISSION SIGNAL
28	M DATA	OUT	MEMORY IC DATA
29	PLL CE	IN	TUNING IC CHIP ENABLE
30	LOCK DET	IN	TUNING LOCK CHECK
31	EXP DATA	OUT	EXPANDER IC DATA OUTPUT
32	H SEL	OUT	HEAD SELECT CONTROL (SP:L/LP:M/EP:H)
33	REC ST(H)	OUT	REC START:H
34	A/M/S	OUT	PRE/REC CIRCUIT CONTROL(AUTO:M/MANUAL:H/S&S:L)
35	V. REC	OUT	VIDEO REC MODE:H
36	I2C SCL	OUT	NICAM DATA TRANSFER CLOCK
37	I2C SDA	OUT	NICAM CONTROL DATA OUTPUT
38	ENDS	IN	TRAILER TAPE DETECT(DETECT ON:L)
39	R. PAUSE	IN	REMOTE PAUSE CONTROL(PAUSE ON:L)
40	RAE	OUT	REMOTE PAUSE CONTROL OUTPUT

Table 6-1-1-A SYSCON CPU pin function (1/2)

6.1.2 Syscon CPU pin function (IC601) 2/2

PIN NO.	LABEL	IN/OUT	NOTE
41	AN2/DEC	IN	AN2 SELECT SWITCH
42	SECAM DET	OUT	SECAM DETECT:L
43	FRONT	OUT	FRONT INPUT MODE:H
44	EE	OUT	EE MODE:L
45	VPCTL	OUT	V.PULSE ADDITION TIMING CONTROL
46	SCR	OUT	SCRAMBLE SIGNAL
47	COM CLOCK	OUT	MEMORY IC DATA TRANSFER CLOCK
48	H REC ST	OUT	HiFi AUDIO REC START:L
49	CH DATA	OUT	IIL LOGIC CTL DATA
50	RC IN	IN	REMOTE CONTROL DATA INPUT
51	A. MUTE	OUT	AUDIO MUTE CONTROL(MUTE ON:H)
52	CTL C/D	IN	CTL PULSE INPUT(MODE DETECT/BLANK PORTION DET)
53	P. MUTE	OUT	PICTURE MUTE CONTROL(MUTE:L)
54	SQ/FLY E	OUT	SUPPER QUALITY SWITCH
55	CAP REV	OUT	CAPSTAN MOTOR CONTROL(FWD:H/REV:L)
56	DUTY I/O	IN/OUT	IN/OUT INDEX DATA CONTROL
57	S-OUT	OUT	ON SCREEN CONTROL DATA
58	S-IN	IN	ON SCREEN/FDP CONTROL DATA
59	S-CLK	OUT	DATA TRANSFER CLOCK
60	H DATA	OUT	VIDEO IC CONTROL DATA
61	STB	OUT	CLOCK OUTPUT PERMISSION
62	H CLK	OUT	VIDEO IC DATA TRANSFER CLOCK
63	VCC	-	SYSTEM POWER
64	S. DATA	OUT	SERVO IC CONTROL DATA
65	SERVO	OUT	CAPSTAN MOTOR CONTROL(SERVO:L/SYSCON:H)
66	PAUSE	OUT	CAPSTAN MOTOR CONTROL(PAUSE:L)
67	CTL CLOCK	IN	INDEX CONTROL
68	LCM1	OUT	LOADING MOTOR DRIVE(1)
69	CAP FG	IN	TAPE SPEED DETECT/BACK SPACE COUNT
70	LCM2	OUT	LOADING MOTOR DRIVE(2)
71	D. FF	IN	DRUM ROTATION DETECT/REC TIMING CONTROL
72	AVCC	-	SYSTEM POWER(for ANALOG)
73	ND	IN	NORMAL AUDIO DETECT(NORMAL AUDIO:L)
74	CAP V	OUT	CAPSTANMOTOR VOLTAGE CONTROL
75	DRUM V	OUT	DRUM MOTOR VOLTAGE CONTROL
76	PROTECT	IN	SWD5V/12V DETECT
77	6. 5H DET	IN	PB SWITCHING POINT ADJUST PULSE
78	DV DET	IN	DRUM DRIVE VOLTAGE DET
79	P. DOWN	IN	POWER DOWN DETECT(POWER DOWN:L)
80	S CURVE	IN	TUNING CHECK

Table 6-1-1-B SYSCON CPU pin function (2/2)

E. & O. E. No. 82479